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UNIVERSITY OF EDINBURGH.

M.D., THESIS. 1909

THE STATE OF THE PATELLAR REFLEX IN LOBAR PNEUMONIA
AND OTHER ACUTE LUNG DISEASES.

RECORDS OF 48 CASES.

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M.B., Ch.B.,

1906

APRIL 1909.



THE STATE OF THE PATELLAR REFLEX IN LOBAR PNEUMONIA
AND OTHER ACUTE LUNG DISEASES. RECORDS OF 48 CASES.

It was suggested to me that the City Infirmary Birmingham, containing over 1100 beds and receiving a large number of cases of pneumonia annually, offered an excellent field for the investigation of the above subject on which, so far as I can gather, there appears to be little or no literature published.

I have, therefore, undertaken the investigation of a large number of cases admitted during the last 9 months with a diagnosis of lobar pneumonia, keeping the following objects in view

1. To ^{observe} ~~ascertain~~ the state of the knee jerks during the course of the disease, and to ascertain if possible whether any definite disturbances of the tendon reflexes are common in pneumonia.

2. To determine whether such disturbances might have any prognostic or diagnostic value, or give any indication for treatment.

Although in the early stages of my investigations other tendon reflexes were examined at the same time as the patellar reflex, it soon became evident that for all practical purposes one might take the knee jerk as typical of all the deep reflexes. Also the fact that this could be ascertained without seriously disturbing the patient led me later to confine my attention to the knee jerks. In all the subsequent observations therefore the knee jerk is the tendon reflex referred to.

In order to get a more uniform result a percussor hammer was used to elicit the knee jerks, it being much more difficult to estimate the degree of activity of the knee jerk by means of the fingers alone. In all cases the practice has been to

ascertain the state of the knee jerk when the patient was admitted into hospital and then to make observations morning and evening during the acute stage of the disease and for a few days afterwards, if any disturbances were noted. In the very early stages of this investigation it was found to be quite un-
 particular cases, and the variety of organisms con-
 less to rely upon the first examination to determine the intensity of the jerks, and therefore although many solitary observations all tend to confirm the other results collected in this paper, they have not been included in the figures given or the cases recorded.

In all 60 cases have been fully investigated with a view to determining whether the knee jerk was or was not lost at some stage of the affection. In each case a careful search has been made to discover the organism responsible for the condition. 12 of these cases, however, through absence of sputum or

from other causes, the organism causing the disease could not be ascertained, and these cases are not included in the subsequent discussion because one of the primary objects of the work was to endeavour to discover whether any relationship could be shown to exist between the state of the knee jerks in any particular case, and the variety of organism concerned in producing the disease. For it is now universally recognised that most of the pathogenic organisms are dangerous or fatal on account of the toxins or poisons which they secrete during their growth in or upon the body rather than because of any direct mechanical effects which they produce. In the case of pneumonia and other diseases of the lungs where consolidation is the chief feature, this toxic action may occupy rather too small an amount of attention, because the local symptoms and direct physical changes are so well marked and affect a vital organ. It may frequently happen that where

death occurs, this result may be looked upon as due to the direct changes produced in the lung substance rather than the toxic effect of the organism causing the disease. But even in those cases where a large amount of lung substance is involved, it is difficult to say that any particular patient has died of asphyxia; because the amount of functioning lung would usually have been sufficient to sustain quiet life had the rest been destroyed by the fibrosing process characteristic of pneumonia and allied diseases. It is indeed the rule that in such patients as die of croupous pneumonia, the heart fails before respiration, and although it is not proposed in this paper to discuss the changes which are to be found in the tissues generally after death from pneumonia it may be here mentioned that most of the organs are liable to show cloudy swelling, that there may in places be demonstrated early fatty degeneration, and

that the heart muscle is very prone to show such changes. All these changes are of course attributable to the toxic effect produced by the organism and probably have a much more important bearing upon the course of the disease than the mechanical effects produced by lung consolidation. And apart from the symptoms which are directly referable to the heart and lungs, others make their appearance and are nearly always found to be due to the toxins which are secreted by the organisms during their development in the lungs. Occasionally in the case of pneumonia the organisms are disseminated throughout the blood stream, and there may thus arise a pneumococcal meningitis, endocarditis, or arthritis. But in the main the organisms do not flourish in man in the blood stream, so that symptoms of fever, delirium will as a rule indicate that there is a more or less severe toxæmia affecting the nervous system.

Another sign, the loss of general strength, will depend to a certain extent upon the great interference with the heart and lungs, but will also depend upon the poisoning of the nervous system. The symptom of delirium may be taken as indicating that the higher levels of the nervous system are disordered; the fever indicates that the basal ganglia are affected; whilst the temporary abeyance of the tendon jerks, which in the course of this investigation was found to be so common a feature in pneumococcal conditions indicates that the centres in the spinal cord or peripheral nerves are suffering from the toxæmia.

The following are copies of the charts of temperature and in most cases also of pulse and respiration of the cases investigated. An attempt has been made to indicate graphically the intensity of the knee jerks. A base line to indicate the normal knee jerk has been drawn on each chart and the actual condition found in each case is indicated by

a line thus #####. Where this coincides with the base line the knee jerk was considered to be normal; departure from the normal is indicated by a rise or fall above or below the base line, and failure to elicit the knee jerk by absence of the characteristic line from the chart.

In a few cases charts are not included either on account of their length or because the notes given are an equally clear indication of the state of the knee jerks. Such notes of the leading features of each case are given as are considered necessary, but no effort has been made to give elaborate details beyond the graphic representation provided by each chart.

Case 1
4 HOUR CHART.

DISEASE.
*Lobar
Pneumonia*

Name *James
Barlow*

Age *36.*

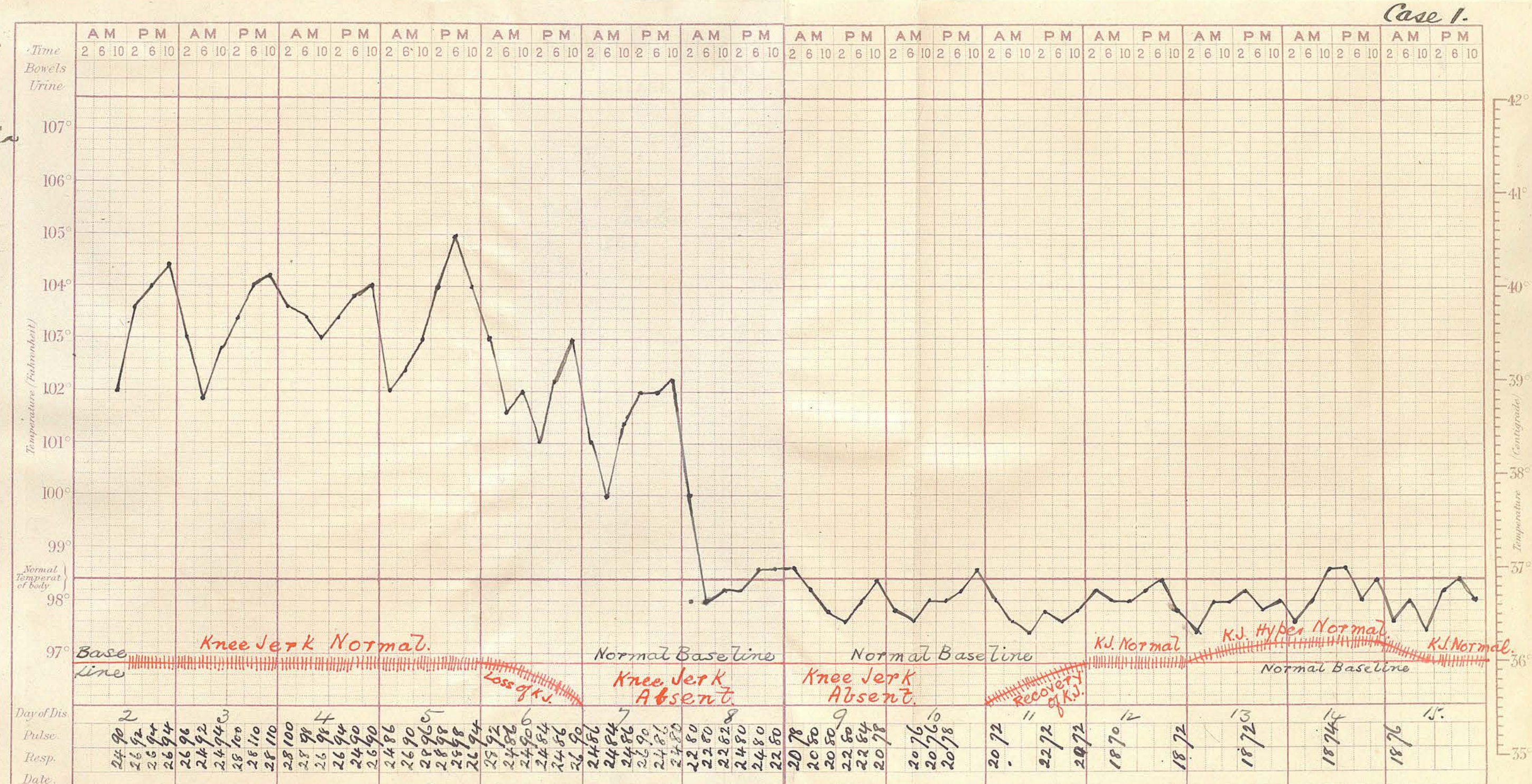
Diet

Case Book N^o

Notes of Case

Date of admission

Result



CASE 1.

J.B. Age 36.

Occupation Out-door labourer.

History Moderate with alcohol. Had influenza three years ago.(2 weeks ill) Strong, well developed man. Left work two days before admission owing to short painful cough. Though he had another attack of Influenza. Typical rusty sputum when admitted.

Bacteriology of Sputum Fraenkel's Pneumococci abundant.

Lungs Consolidation of right lower lobe. Typical physical signs of lobar pneumonia.

Heart showed little tendency to weakness, and responded well to strophanthus.

Knee Jerks Normal on admission. Diminished on sixth day of illness. Absent on morning of seventh day.(Crisis on eight day.) Remained absent until eleventh day when its presence was doubtful. Normal on the twelvth day. Hypernormal on the 13th and 14th days.

Case 2 4 HOUR CHART.

DISEASE.

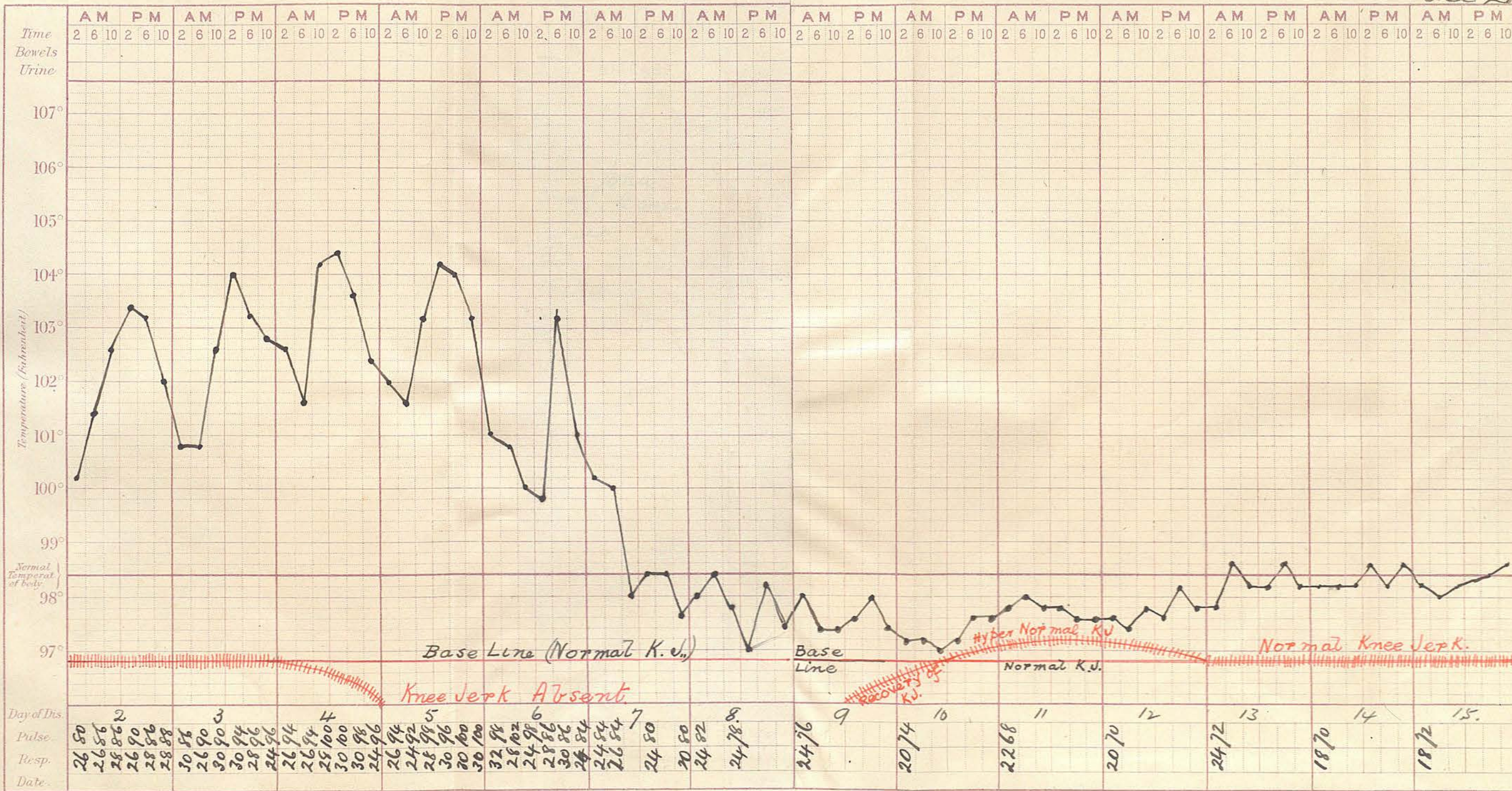
Name *John Cook*
Age *22.*
Diet
Case Book No.

Notes of Case

Date of admission

Result

Case 2



J.C. Age 22

Occupation Labourer

This was one of the cases which was observed from the commencement of the attack, the patient being in hospital at the moment of attack. The case was one of lobar pneumonia (right lung) of ordinary severity, commencing with rigor and pain in chest, but no sickness. Sputum showed pneumococci, (Fraenkel's) Crisis occurred on the evening of the 6th day, and there was no subsequent rise of temperature.

Knee jerks. Normal on 2nd and 3rd days. Difficult to elicit on the 4th morning, and their presence was doubtful in the evening. On the morning of the 5th day they were quite gone, and remained absent until the evening of the 9th day, when there appeared to be some slight response. On the 10th day they were fairly active, particularly in the evening, and on the 11th and 12th days they were decidedly above normal.

Case 3
4 HOUR CHART.

DISEASE.
Lobar
Pneumonia

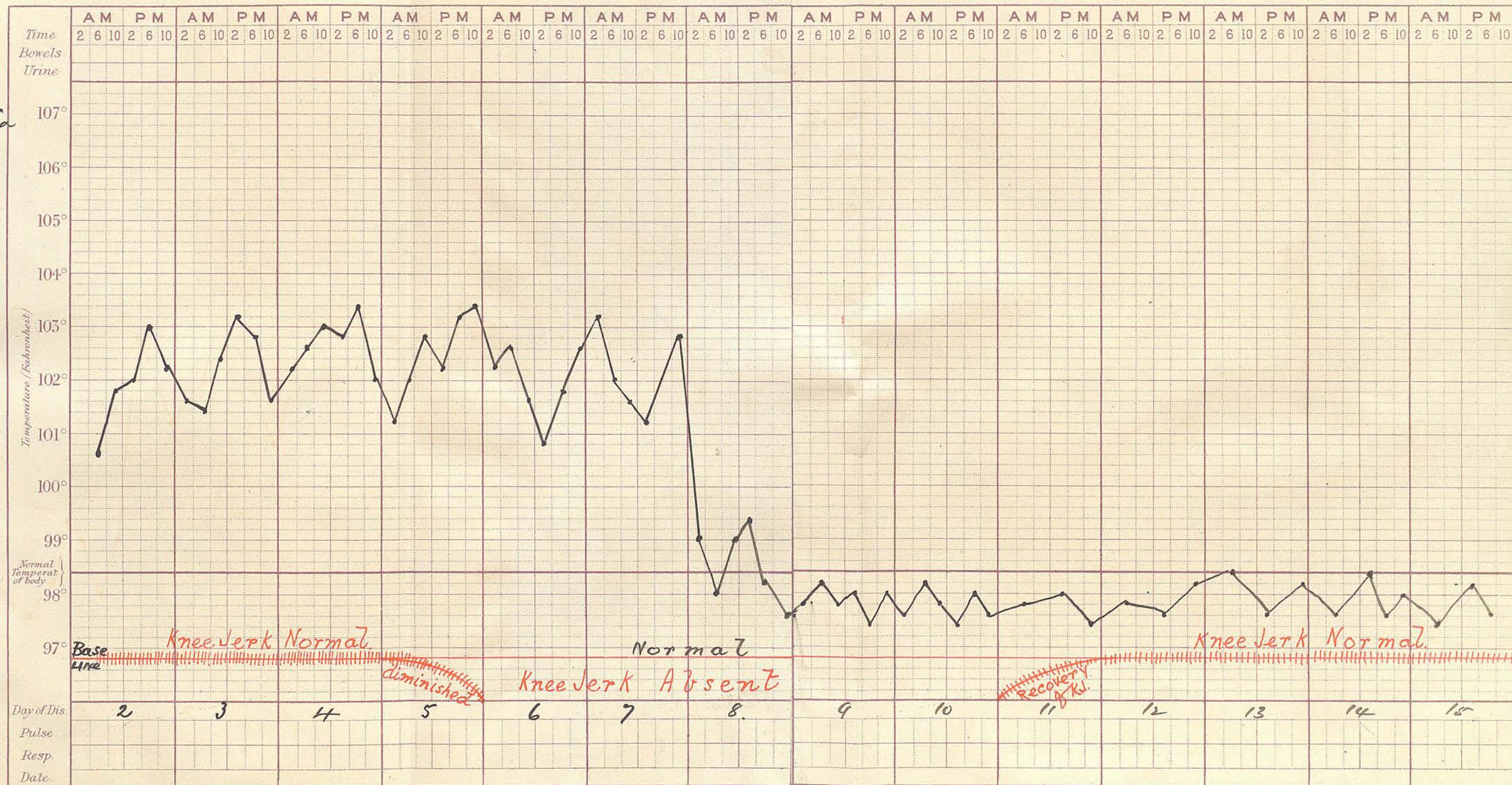
Name { Robert
Marshall
Age 28.
Diet
Case Book No

Notes of Case

Date of admission

Result

Case 3



//

CASE 3

R. M. Age 28.

Occupation Bricklayer.

History Non alcoholic. Has had previous attack of pneumonia 6 years ago. Is considerably exposed to weather. Well developed. Present attack commenced day before admission. Felt ill when he went to work. Headache and malaise. Had to come home. Had rigor. Sputum showed pneumococci (Fraenkel's)

Lungs. Consolidation of right lung with typical physical signs.

Crisis on evening of seventh day of disease.

Knee jerk Normal until fifth day of disease when it became much diminished. Absent from sixth to tenth day (inclusive) Difficult to elicit on eleventh day. Normal on the twelfth and following days. There did not appear to be any increase in the activity of the knee jerks at this period.

Case 4
HOOR CHART.

DISEASE.
Lobar Pneumonia

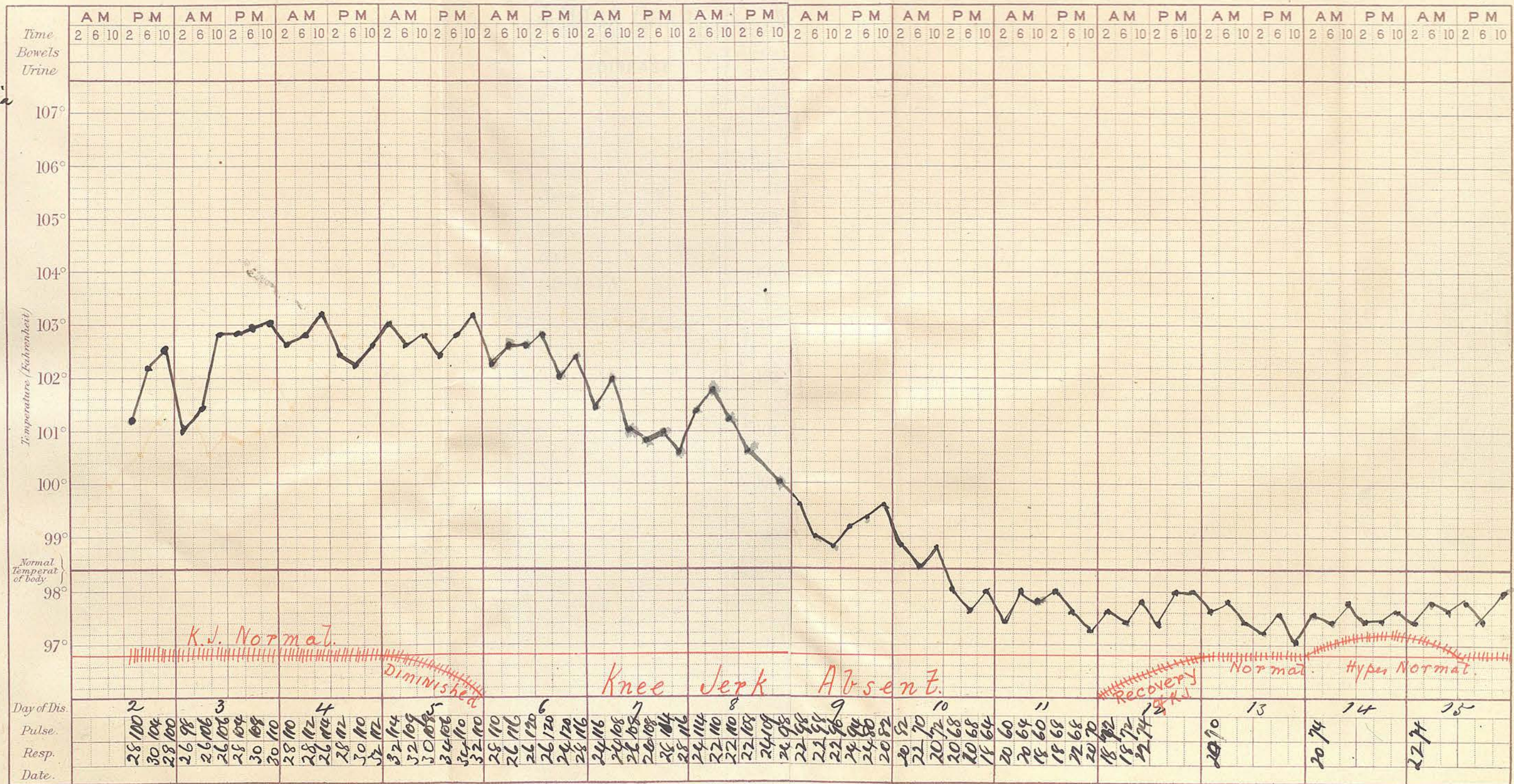
Name { Thomas
Murphy
Age 52.

Case Book No.

Notes of Case

Date of admission

Result



CASE 4.

T.M. Age 52.

Occupation Labourer.

History. Moderate with alcohol. Had very little illness previously. Commenced day before admission with pain in left side of chest. Some vomiting. Sputum rusty, containing numerous pneumococci. Crisis on 8th day with subsequent rise after which recovery uneventful.

Knee jerks. Normal up till the 5th day of disease, when they became considerably diminished. Remained absent for 6 days. On the 12th day there was slight re-action, which became more like normal on 13th day. On 14th day there appeared to be a decided increase in the activity of the knee jerk, and on the 15th day they were again normal.

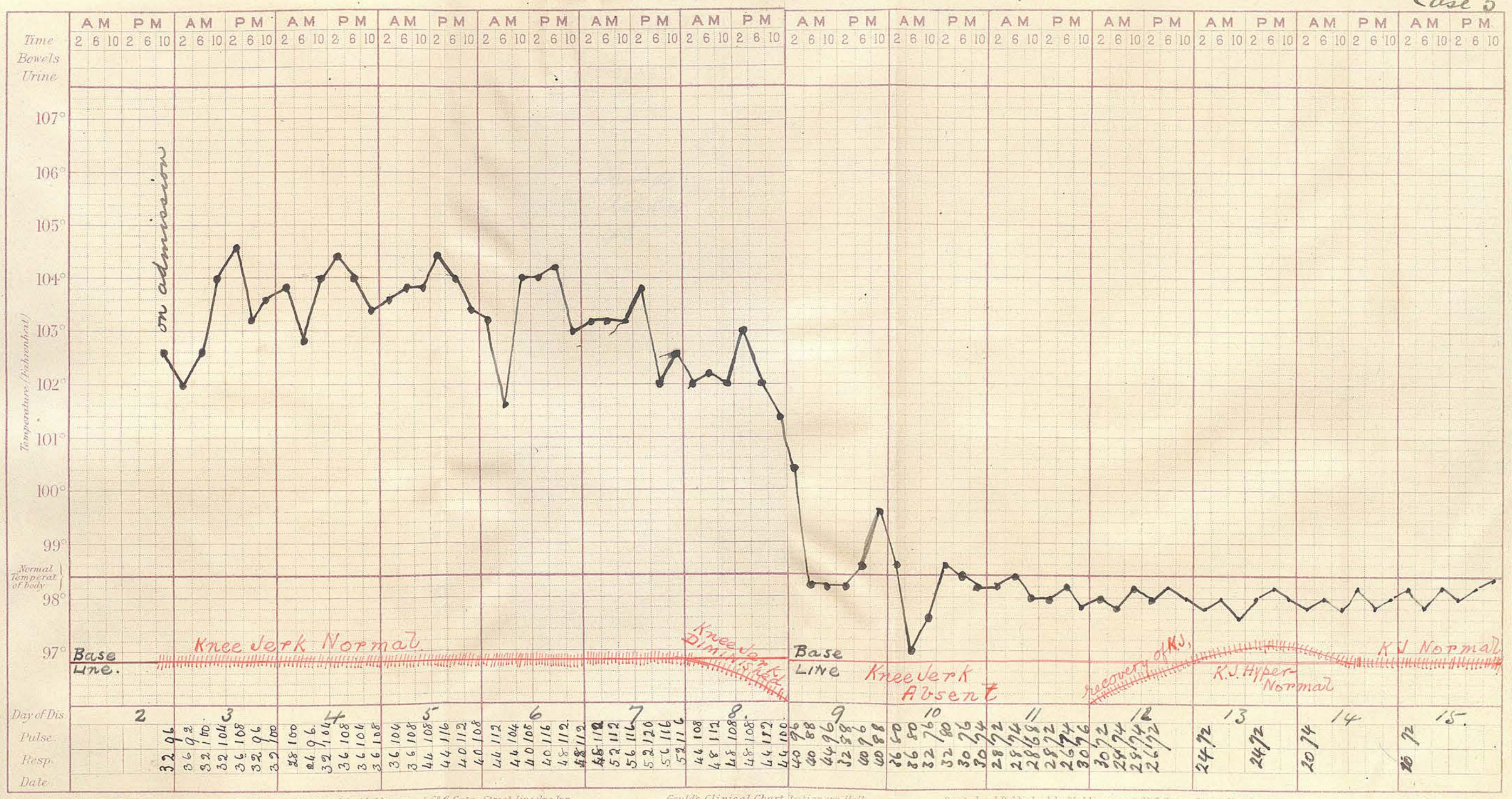
Case 5 Hour Chart.

DISEASE.

Name *David Aitkin*
Age *43*
Sex *Male*
Case Book No.

Notes of Case

Presumed
Date of admission
Result



13

CASE 5

D.A. Age 43

Occupation Tailor.

Consolidation of whole right lung. Temperature ranged between 103° and 104° during most of the acute stage, and there was some delirium on the 3rd and 4th days. A typical crisis occurred, however, on the 8th day, and the remaining history was uneventful.

Knee jerks. Only disappeared towards the evening of the 8th day, just about the crisis. They remained absent for three days, and were with difficulty demonstrated on the 12th day. On the 13th, however, they were decidedly active, and were normal on the 14th and subsequent days.

Case 6

Lobar
Pneumonia

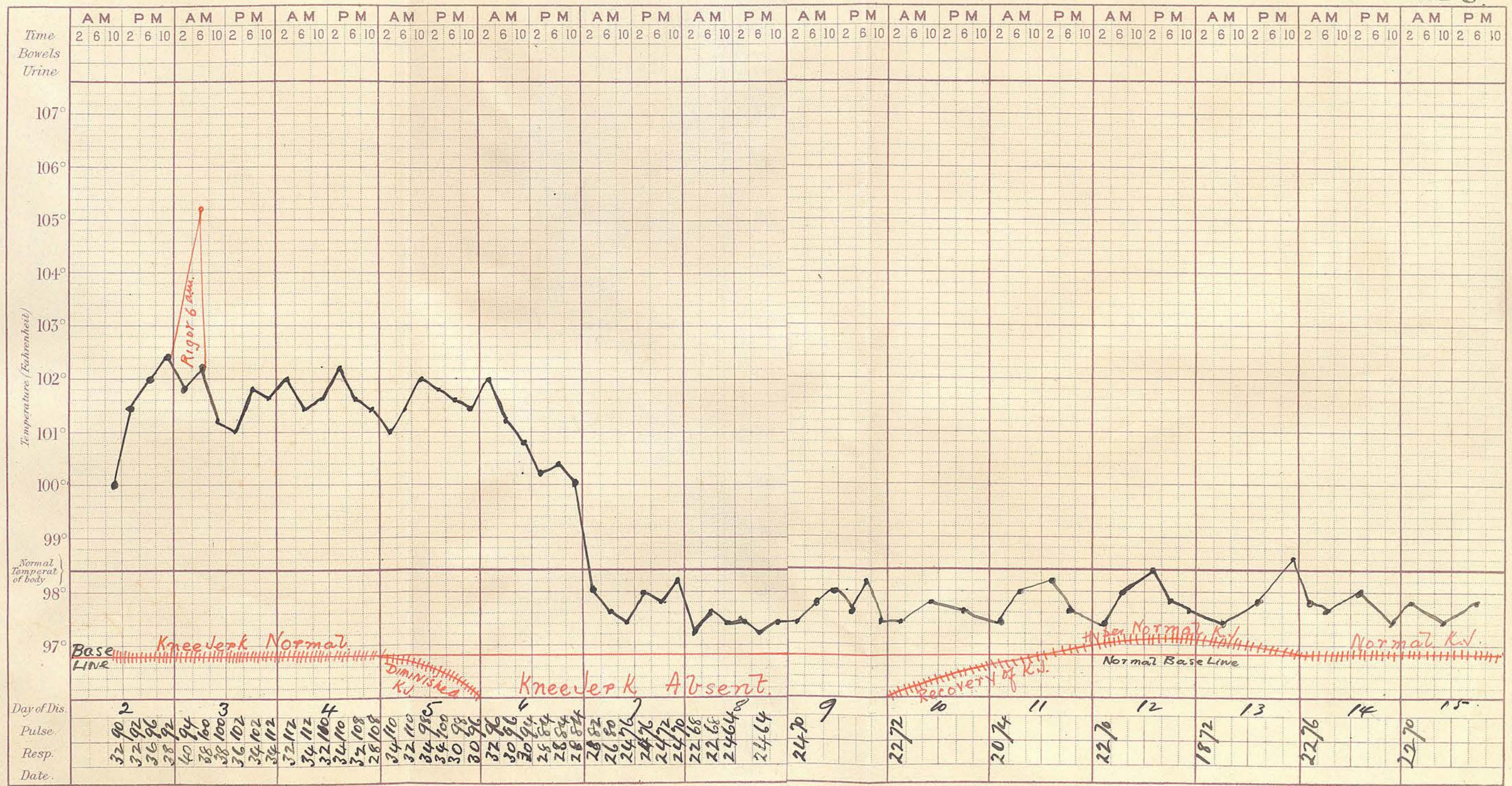
John Murray
46.

Case Book N^o

Notes of Case

Date of admission

Result



14

CASE 6.

J.M. Age 46.

Occupation Moulder.

History Somewhat alcoholic. No previous history of serious illness. Left off work the day previous to admission, feeling generally out of sorts. Noticed shortness of breath but no particular pain in chest. No sickness. Slight cough. Sputum became rusty after admission and contained numerous Fraenkel's penumococci.

Lungs. Right upper and middle lobe chiefly affected. Usual physical signs of consolidation. Crisis on sixth day followed by uninterrupted recovery.

Knee jerk Normal on admission and remained so until the fifth day, when it was decidedly diminished. Absent for 4 days (until ninth day of disease) Gradual re-appearance on the tenth and eleventh days, becoming hypernormal on the twelfth day and normal on the fourteenth day.

Case 7 HOUR CHART.

DISEASE.

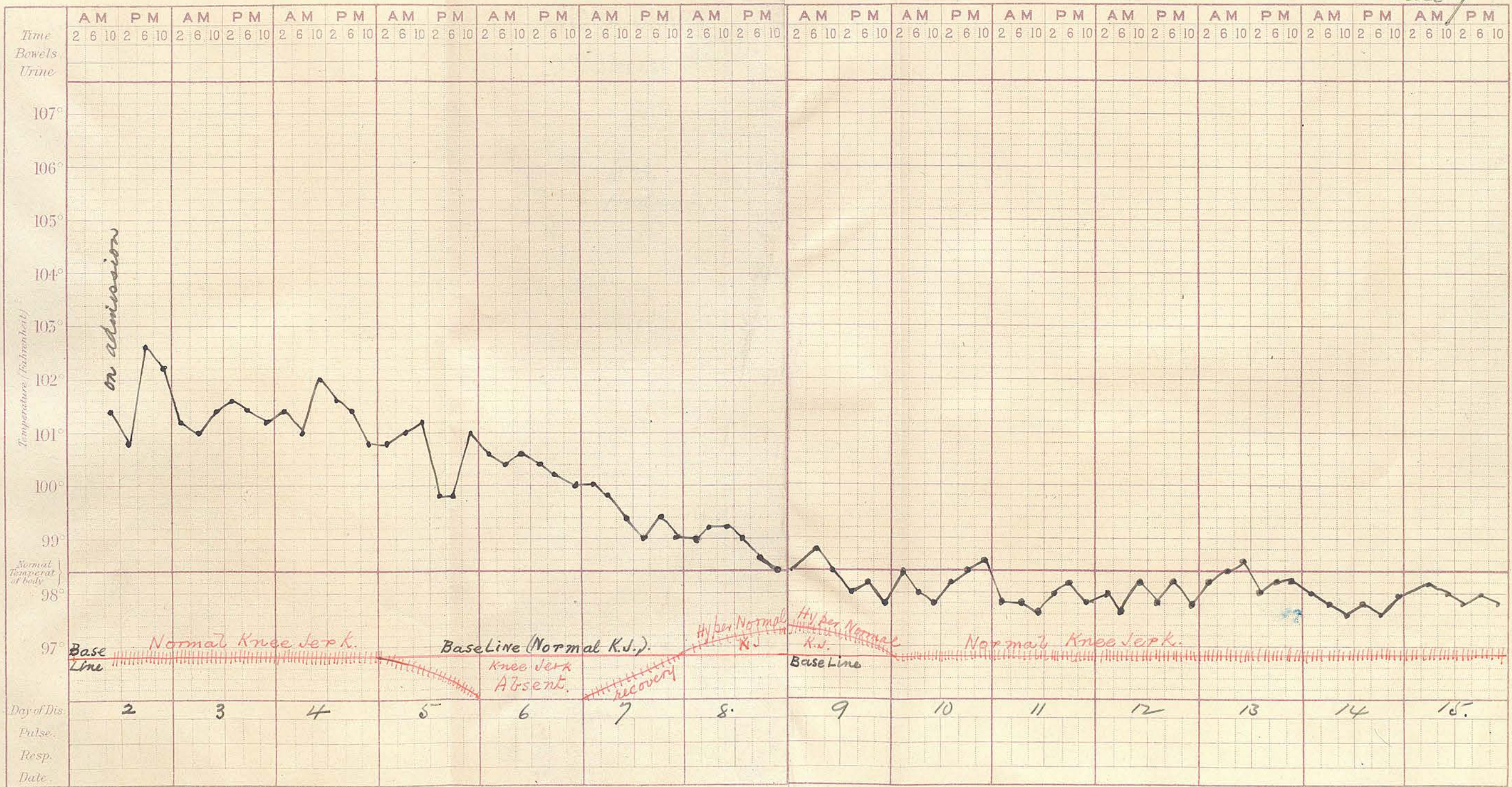
Wm
Hodson.
38.

Notes of Case

Date of admission

Result

Case 7



W.H. Age 38

Occupation Carter

History Non alcoholic. Never had anything worse than "severe cold". Present illness commenced day before admission. Suddenly seized whilst at work with severe pain in the region of the heart, which made him sick. He did not appear to be severely ill and his temperature came down somewhat gradually without any definite crisis. He had considerable rusty sputum which showed numerous characteristic pneumococci (Fraenkel's) and no T.B.

Lungs The area of consolidation was confined to the left lower lobe

Knee jerk was only absent on one day (the sixth) but on both the fifth and seventh it was very feeble. On the eight and ninth the knee jerks seemed to be somewhat above normal in their activity.

Case 8
FOUR CHART.

DISEASE.
St. Pneumonia

me *James*
W. Simon
24.

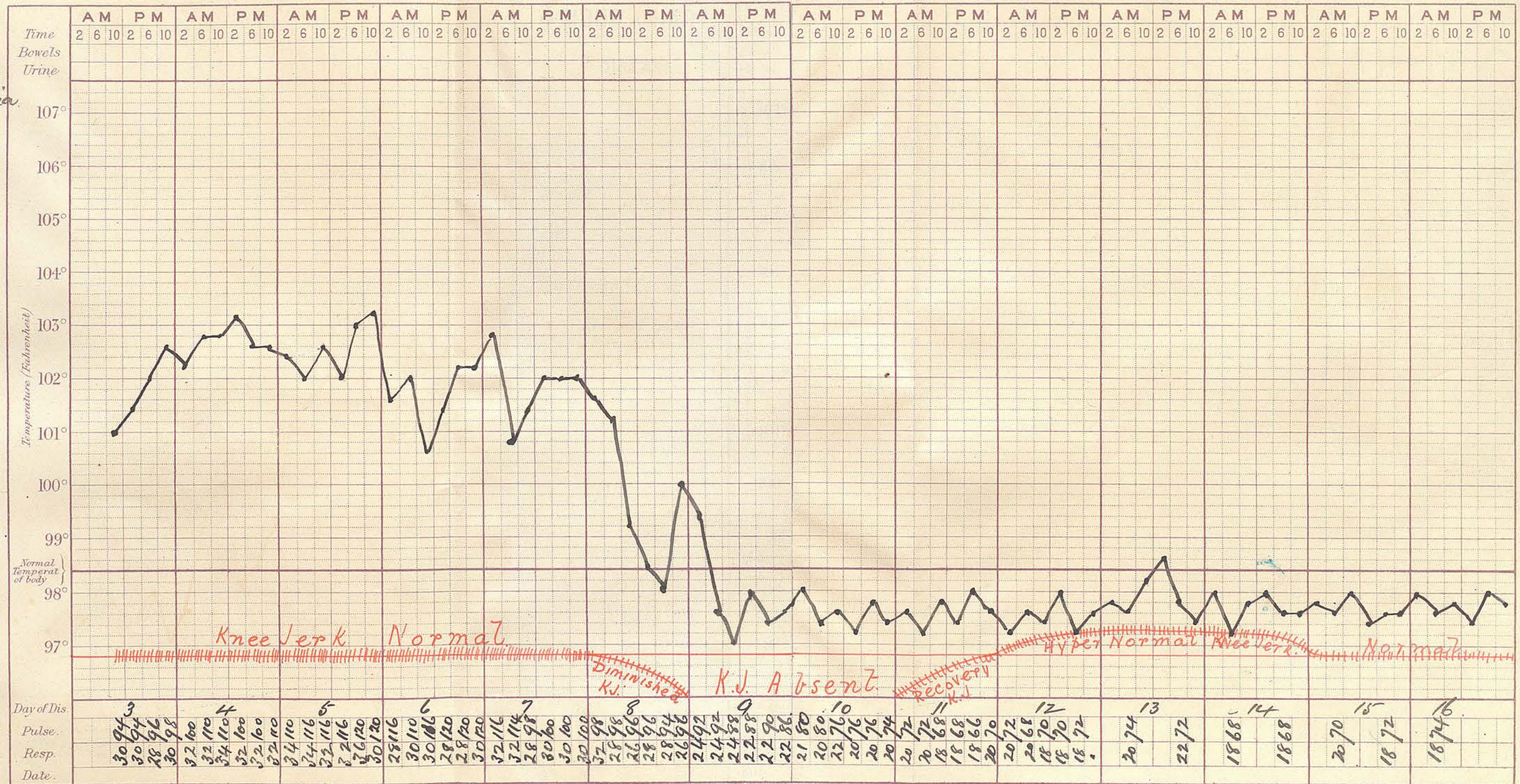
Book No.

Notes of Case

Date of admission

sult

Case 8



16

CASE 8.

J.V. Age 24

Occupation Diamond setter.

History Non alcoholic. No previous illness since childhood. Well developed and fairly muscular. "Caught a chill" two days ago. Ceased with sudden pain in chest. Vomited twice. Severe headache. Rigor. Slight cough. Sputum now rusty.

Bacteriology of Sputum Fraenkel's pneumococci abundant.

Lungs Extensive consolidation of right lung.

Typical physical signs of lobar pneumonia involving practically whole of right lung.

Knee Jerk Normal when admitted. Five days after admission and corresponding exactly with the crisis, the knee jerk disappeared and remained absent for two days. Next day, (the 11th) its presence was doubtful, but on the 12th day it was certainly present and for two or three days it seemed hyper-normal.

Case 9
HOUR CHART.

DISEASE.

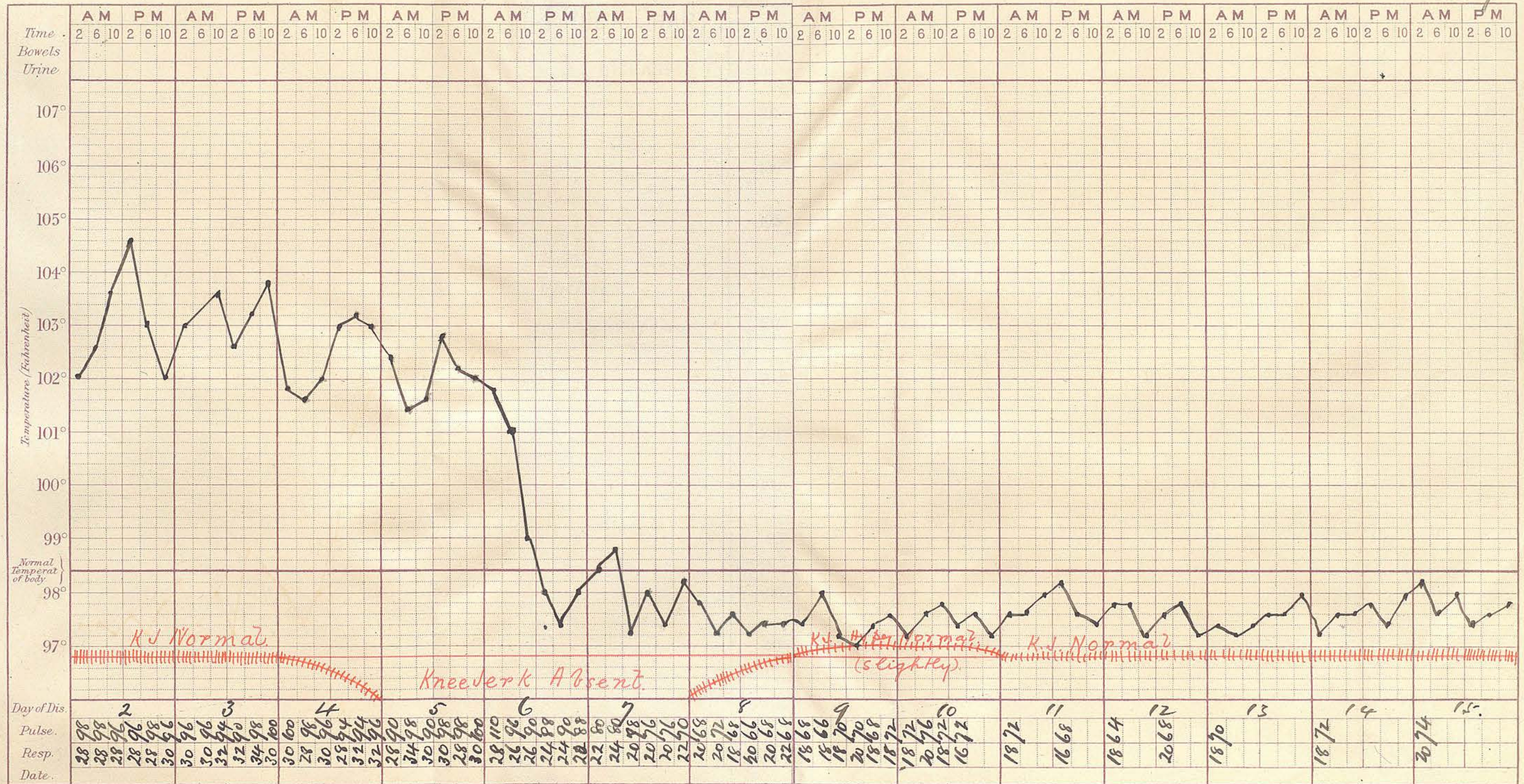
Wm
Jones
22.

Notes of Case

Date of admission

Result

Case 9



W.J. Age 22

Occupation Brass polisher.

History. Pneumonia developed whilst in hospital, hence observations as to knee jerks were complete. The case was one of ordinary lobar pneumonia, involving the upper and middle lobes of right lung. Crisis occurred on 6th day and beyond a slight rise during the next night, the subsequent history was uneventful. The sputum showed typical pneumococci almost in pure culture.

Knee jerks, which were normal until the 4th day then began to decline and were absent on 5th, 6th, and 7th days. They were got with difficulty on the 8th day and appeared hypernormal on the 9th and 10th days. On subsequent days they were normal.

Case 10
HOUR CHART.

DISEASE.

Inf. Pneumonia

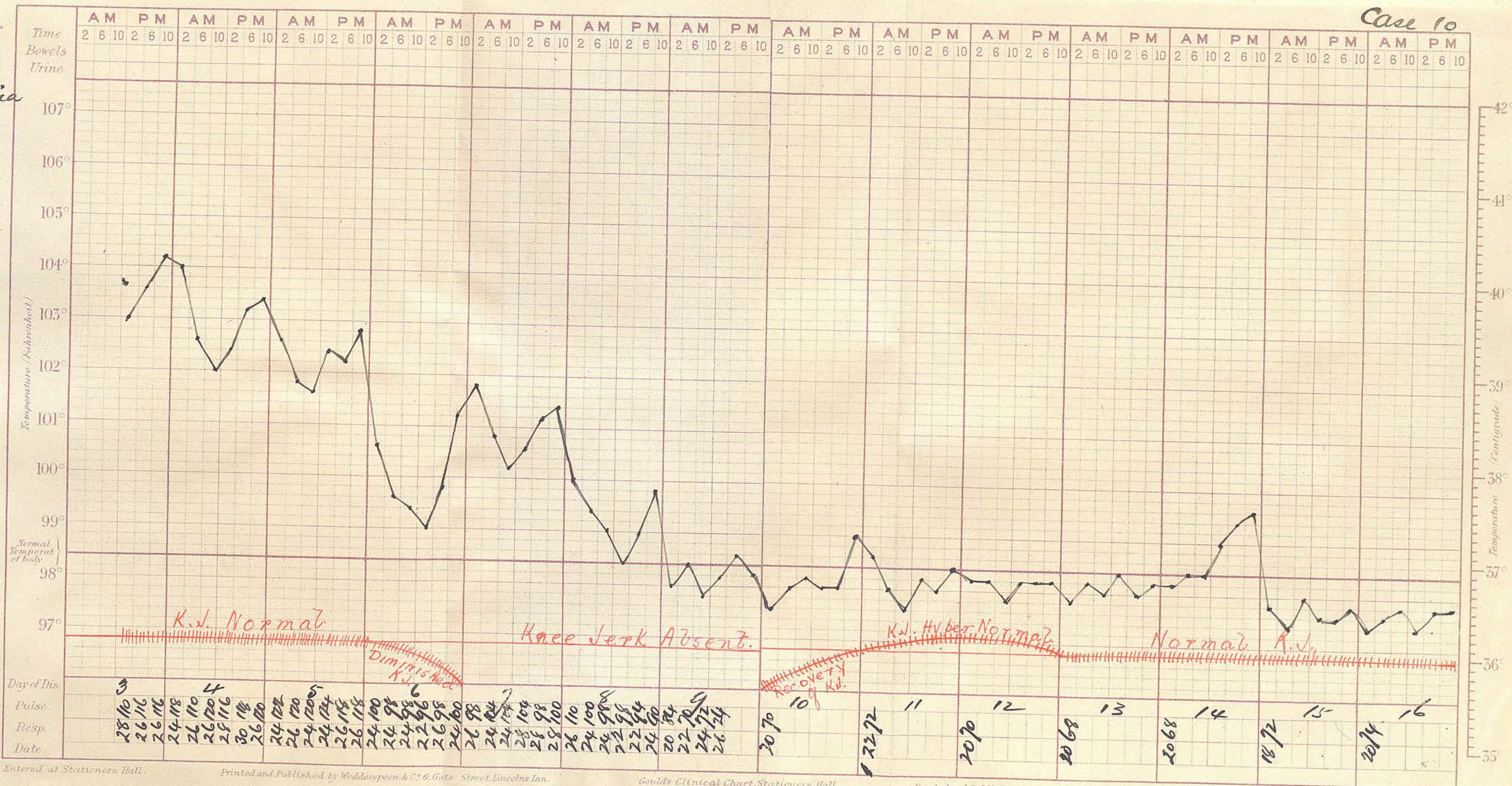
James
Robertson
16.

Book No.

Notes of Case

Date of admission

Result



J.R. Age 16

Occupation. Rag sorter.

History. No alcohol. Scarlet fever when 7 years of age. Illness commenced 2 days ago with headache, vomiting and rigor. Rusty sputum when admitted.

Bacteriology. Fraenkel's pneumococci abundant.

No tubercle bacilli.

Lungs. Consolidation of left lung, with typical physical signs.

Knee jerks. Normal on admission. Somewhat diminished on 6th day of illness. Absent on 7th, 8th and 9th days; doubtful on 10th morning but present in evening. Hypernormal on 11th and 12th days, and normal again on the 13th. A pseudo crisis occurred on 6th day.

Temperature rose again in the evening and eventually came down by lysis.

Case 11
HOUR CHART.

DISEASE.

Thomas Jones.

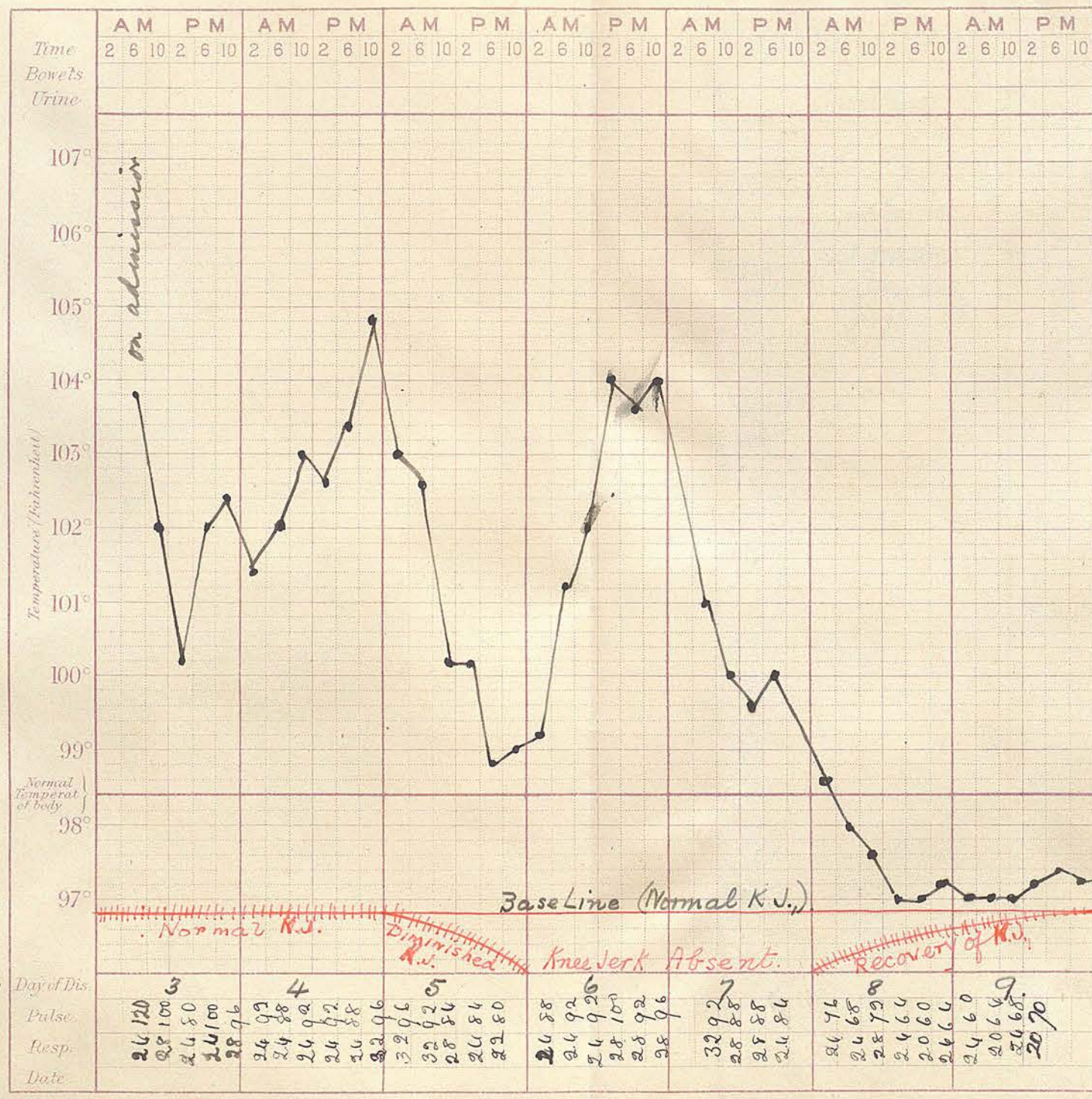
et

se Book No.

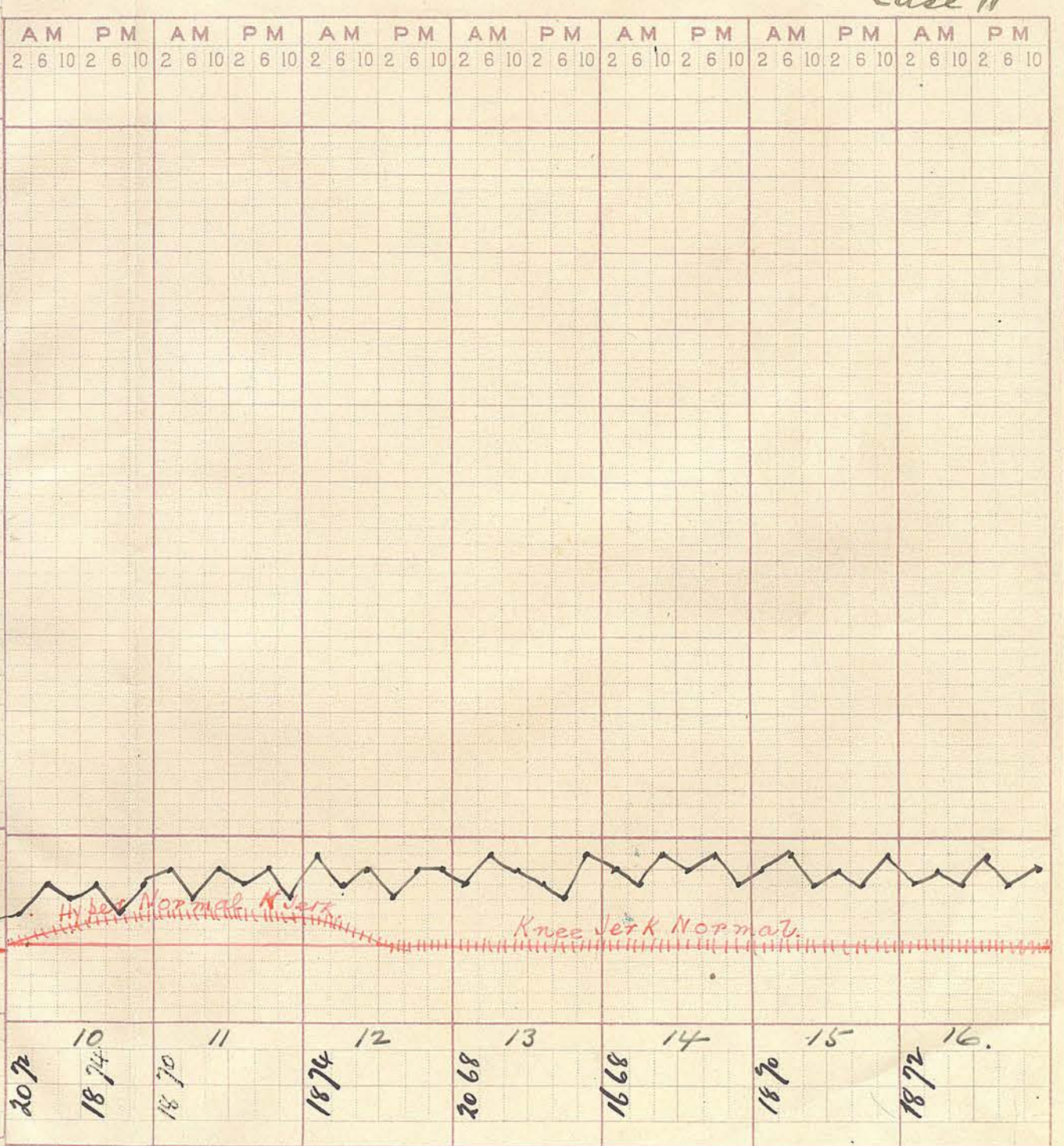
Notes of Case

Presumed Date of admission →

Result



Case 11



T.J. Age 37

Occupation Carpenter.

History. Somewhat alcoholic. Present illness commenced day before admission. Thought he "caught a chill". Considerable pain in the abdomen with vomiting. Short cough and later rusty sputum, containing pneumococci (Fraenkel's)

Progress. Pseudo crisis occurred on the 5th day but temperature rose to 104° again next day. Same evening, however, temperature fell and remained below normal.

Knee jerks. Normal on admission.

Diminished on 5th day.

Absent on 6th and 7th days.

Gradual recovery on 8th and 10th days.

Hypernormal on 10th and 11th days.

Normal on 12th et seq.

Case 12

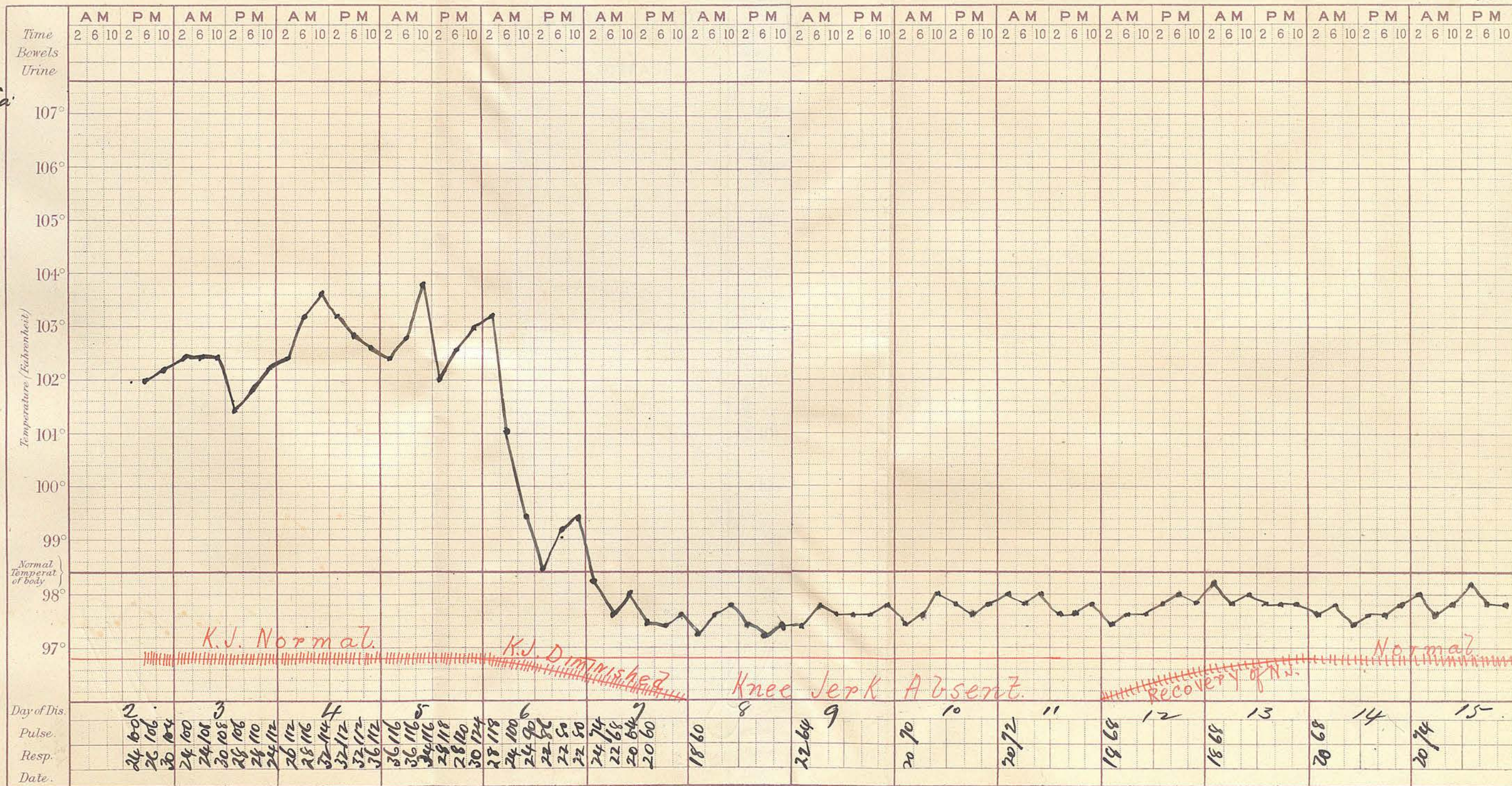
Hour Chart.

DISEASE.
Lobar Pneumonia

Name *James*
Debyshire
Age *34*

Sex *Male*

Notes of Case



Date of admission

Result

J.D. Age 34

Occupation Labourer

History. Moderate alcohol. No serious illness.

Present illness commenced with pain in right side and short painful cough the day before admission.

Lungs Consolidation of right upper and middle lobes
Crisis on 6th day, followed by uneventful recovery.

Knee jerks. Normal on admission. Slightly diminished on 6th and 7th days. Absent on 8th, 9th, 10th, and 11th days. Gradual recovery took place on the 12th and 13th days and on the 14th they were again normal.

Case 13
4 HOUR CHART.

DISEASE.
dysentery

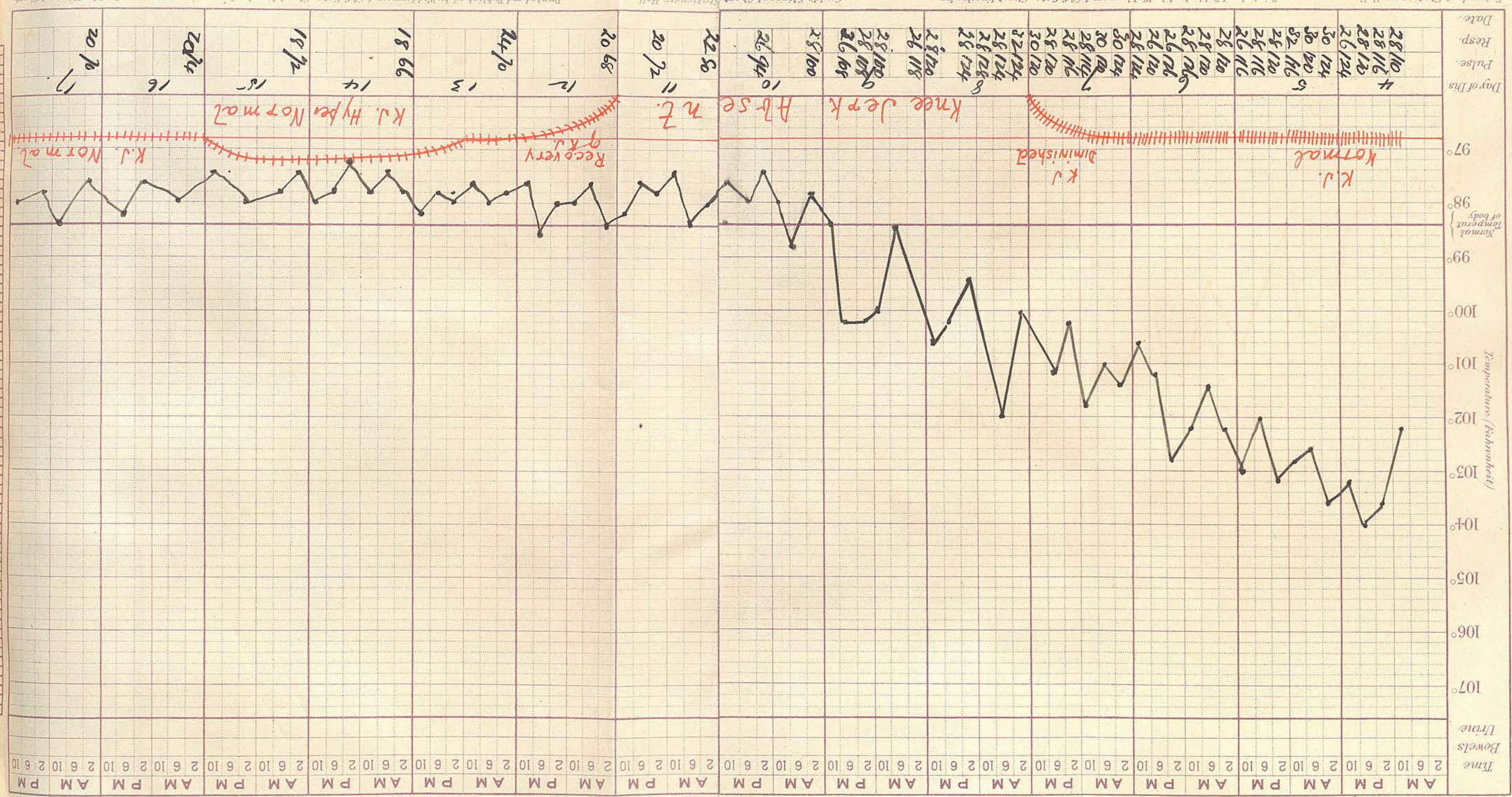
Name } *Frederick*
Age } *18*
Diet

Case Book No

Notes of Case

Date of admission

Result



Case 13

W.S. Age 18

Occupation Canal boatman.

History. Illness commenced 4 days before admission.

"Caught a chill" Severe pain in right side,
with severe cough. Sputum rusty on 2nd day.

Some delirium. Whilst in hospital tempera-
ture came down by lysis. Sputum contained
numerous pneumococci.

Lungs. Consolidation confined chiefly to area cor-
responding to upper and middle lobes of
right lung.

Knee jerks. Normal for three days after admission,
i.e. to the 6th or 7th day of disease.

Gradually lost on 7th day and remained
absent until the 11th. Recovery on 12th
and hypernormal for two or three days after-
wards.

4 HOUR CHART.

DISEASE.

Name *Joseph Green*

Age *30.*

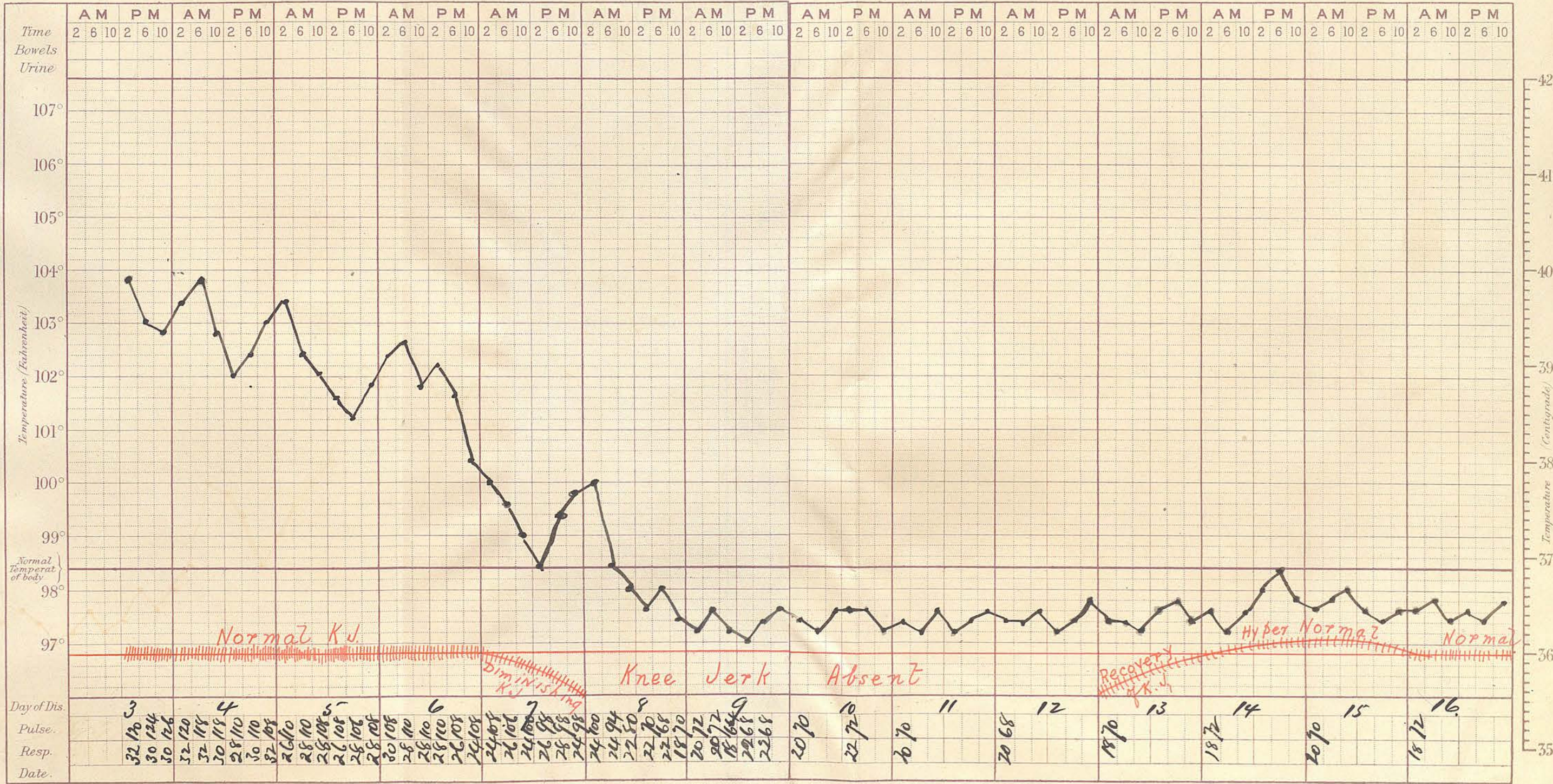
Diet

Case Book N^o

Notes of Case

Date of admission

Result



CASE 14

J.G. Age 30.

Occupation Porter

History. Typical case of lobar pneumonia involving the left lung. Sputum showed abundant pneumococci. (Fraenkel's)

Knee jerks Normal till the 7th day when they were sluggish. Absent from the 8th to 12th days (inclusive). Sluggish on the 13th and hypernormal on the 14th and 15th days. Again normal on subsequent days.

Case 15
4 HOUR CHART.

DISEASE.

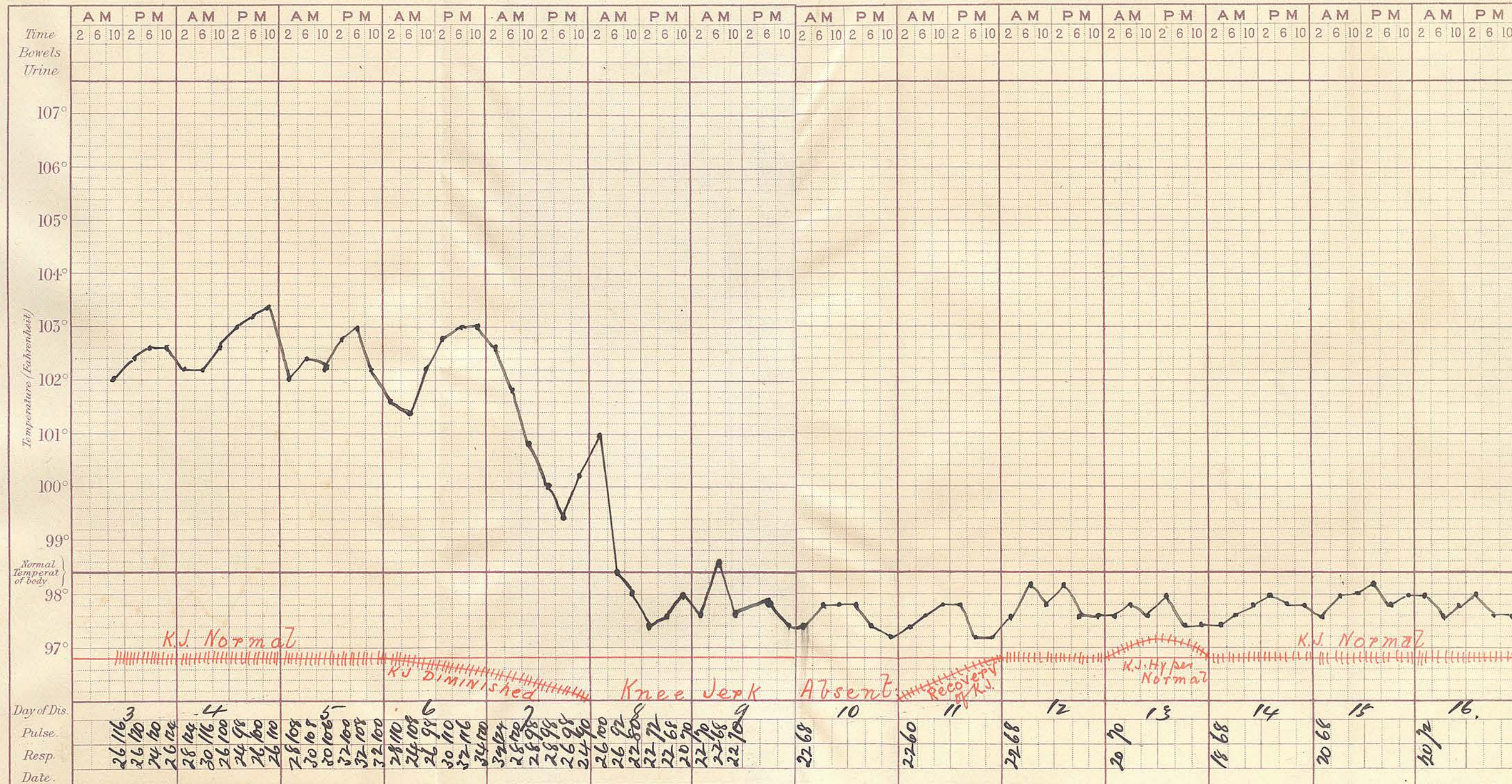
Name *Christopher Hawkins*
Age *39.*

Case Book N^o

Notes of Case

Date of admission

Result



CASE 16

C.H. Age 39

Occupation Furnace man.

History. Moderate with alcohol. Had dysentery 10 years ago. "Caught a chill" whilst at work two days before. Severe and painful cough with blood-stained sputum containing numerous pneumococci.

Lungs Right lung (chiefly upper lobes) showed physical signs of consolidation. Crisis on 7th day with slight rise again in the evening. After history uneventful.

Knee jerks. Normal till 6th day, when they were less active and gradually disappeared on 7th day.. Absent on 8th, 9th, and 10th days. Doubtful on the 11th day, present on the 12th day. Somewhat hypernormal on the 13th day. Normal again on the 14th and subsequent days.

Case 16

4 HOUR CHART.

DISEASE.

Lobar
Pneumonia

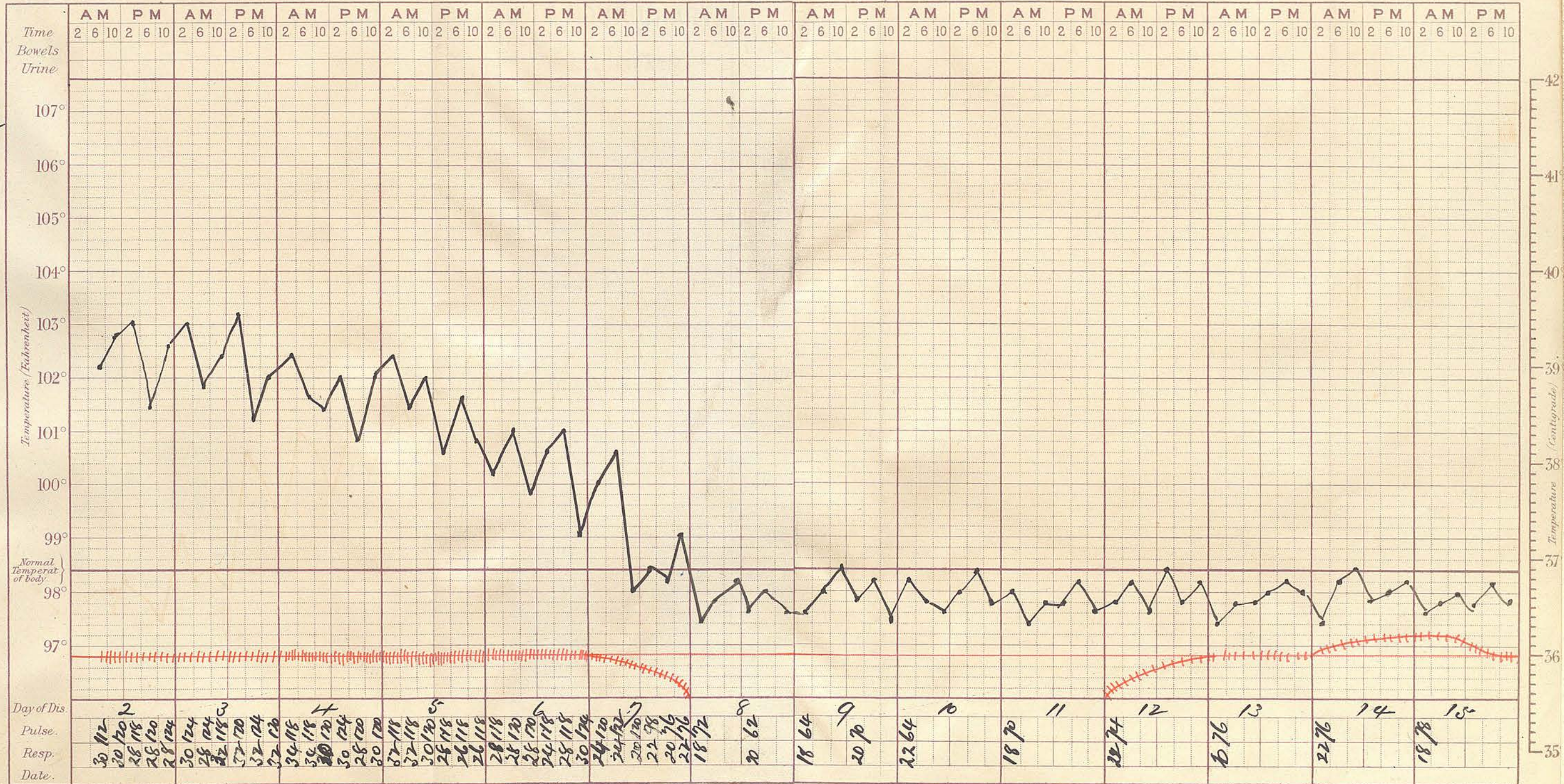
Name Alfred
Jennings
Age 29.

Case Book No.

Notes of Case

Date of admission

Result



A.J. Age 29

Occupation. Porter

History. Well developed man. Has had influenza twice, but no other serious illness. Present illness commenced day before admission with severe pain at right side whilst at work. Had not been feeling well for a day or so before. Vomited once. Sputum rusty on the second day and contained numerous pneumococci. Crises on the morning of the 7th day with slight rise of temperature in the evening. Uninterrupted recovery.

Lungs Consolidation of the whole right lung.

Knee jerks. Normal till the 7th day, (corresponding with crisis) Absent from 8th to 12th day when they were feeble. Normal on 13th and slightly exaggerated on the 14th day.

Case 17 4 HOUR CHART.

DISEASE.

*Lobar
Pneumonia*

Name

Hall

Age

28.

Diet

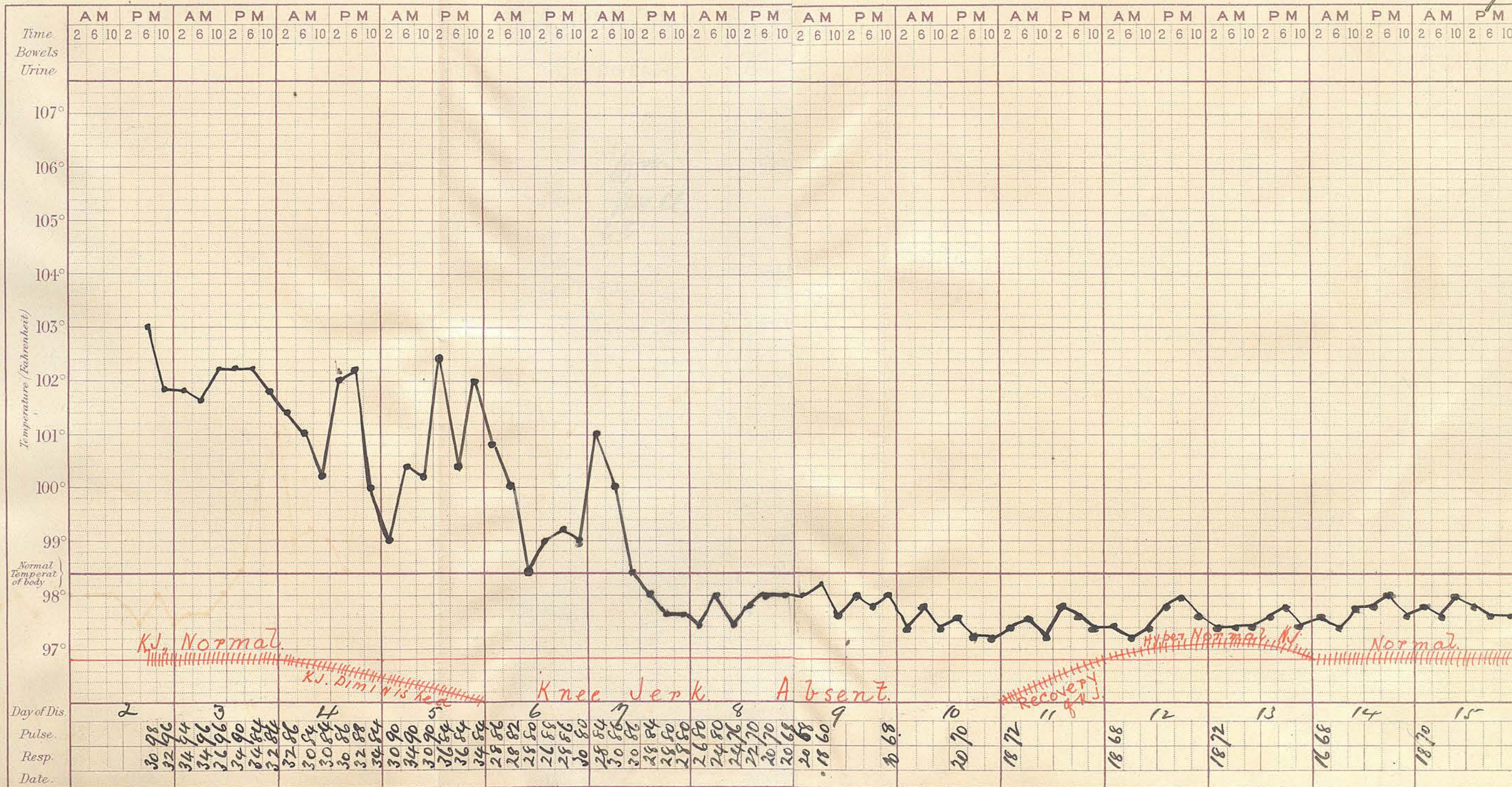
Case Book No.

Notes of Case

Date of admission

Result

Case 17



CASE 17

W.H. Age 28

Occupation Metal worker

History. Has never had any serious illness. Present illness commenced on day before admission, whilst at work. Sharp pain in left side with some sickness. Breathing painful. Short cough. Sputum on the day after admission was very much blood-stained and contained pneumococci.

Lungs Characteristic signs of consolidation of left lower lobe.

Progress. The disease ran an ordinary course and terminated by crisis on the 7th day. Recovery uninterrupted.

Knee jerks. Normal on admission. Less active on 4th and 5th days. Absent from 6th to 11th days. Hypernormal on the 12th and 13th days.

Case 18

4 HOUR CHART.

DISEASE.

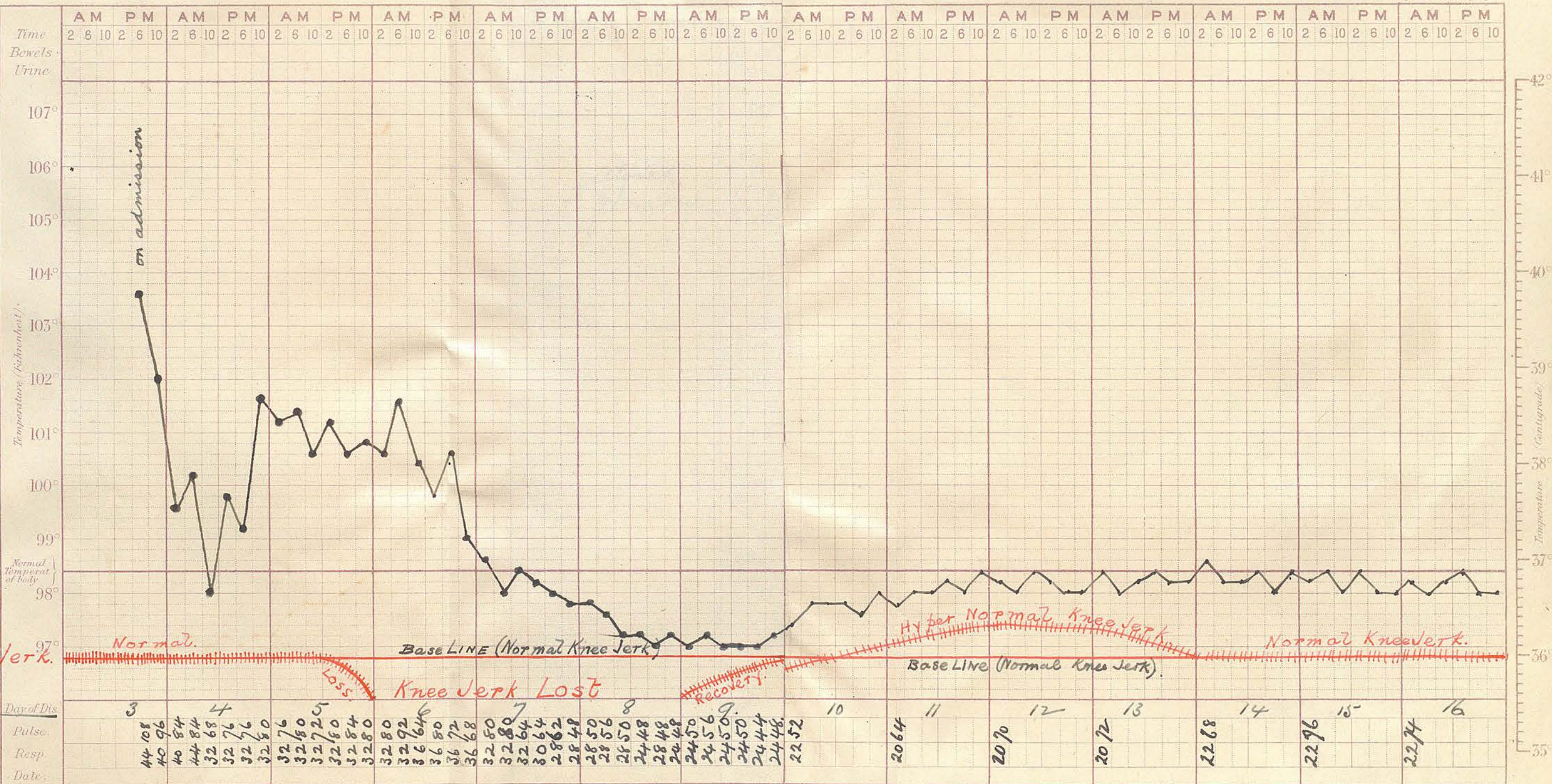
Lobar Pneumonia

Alfred
Norman

16.

Book No. _____

Notes of Case



A.N. Age 16

Occupation. Packer

History. Seized with sudden pain in left side whilst at work two days previously. Vomited several times. Rusty sputum when admitted containing characteristic pneumococci.

Lungs. Physical signs of consolidation of left lung.

Progress. Disease ran an ordinary mild course and terminated by crisis on the evening of the 6th day.

Knee jerks. Lost on the evening of the 5th day and remained absent for three days, after which recovery was gradual for two days. Then for three days they were hypernormal and became again normal on the 14th day.

Case 19. 4 HOUR CHART.

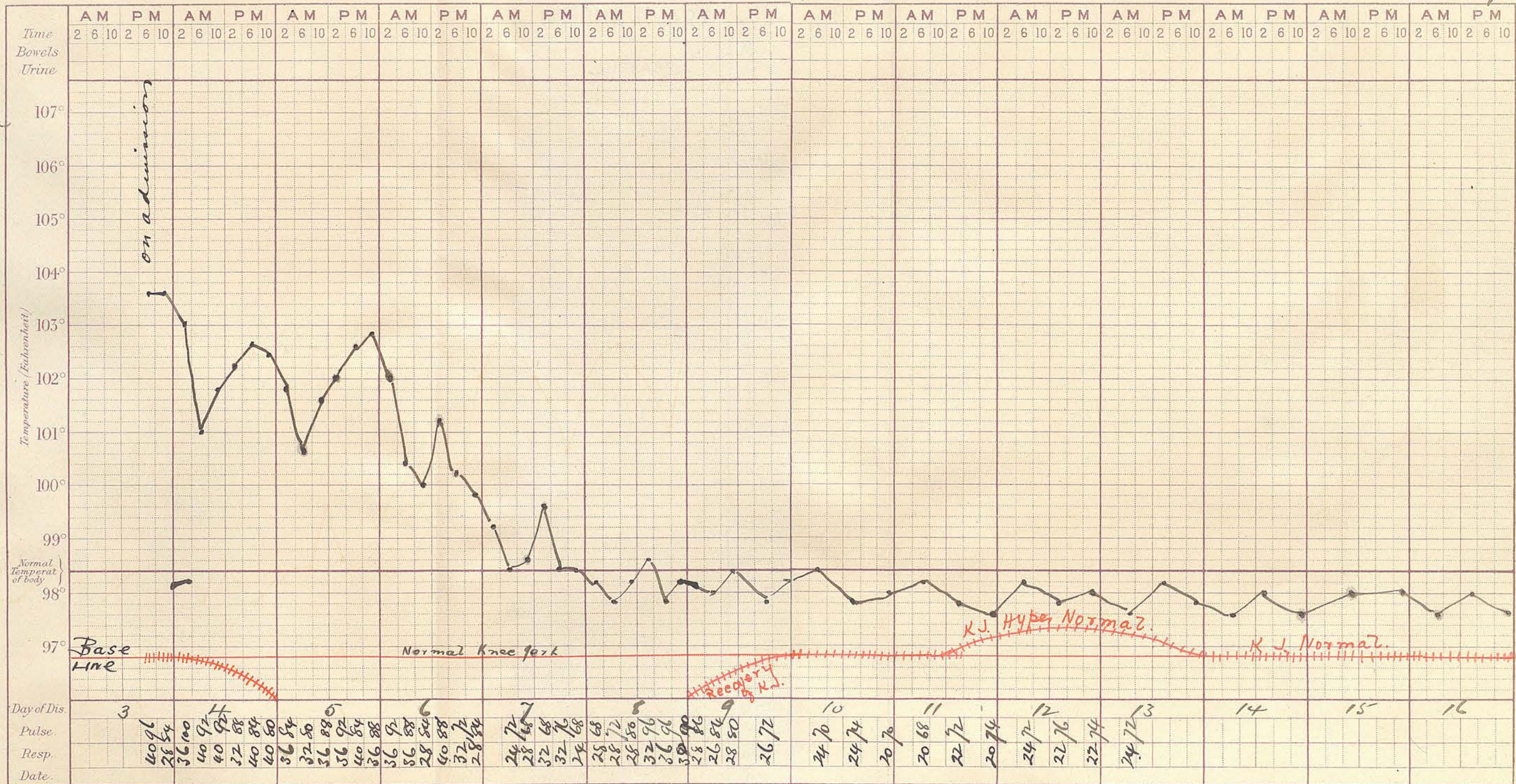
DISEASE.

Lobar Pneumonia

Name *James Cooper*
Age *28*

Case Book No.

Notes of Case



E.M. Age 48

Occupation Labourer.

History. Present illness commenced on the day before admission with severe pains in right side.

On admission temperature 103.2, and pulse 102. Respiration 34.

Lungs. Physical signs of consolidation of right lung.

Sputum. Blood-stained, numerous pneumococci, (Fraenkel's).

Progress. Delirium on 2nd day after admission but otherwise case progressed favourably and terminated by crisis on the 6th day.

Knee jerks. Normal on admission. Disappeared on the 4th day. Remained absent four days, after which there was a short period of greater activity than normal.

Case 20

4 HOUR CHART.

DISEASE.

Lobar

Pneumonia

Name

Robert
Stone

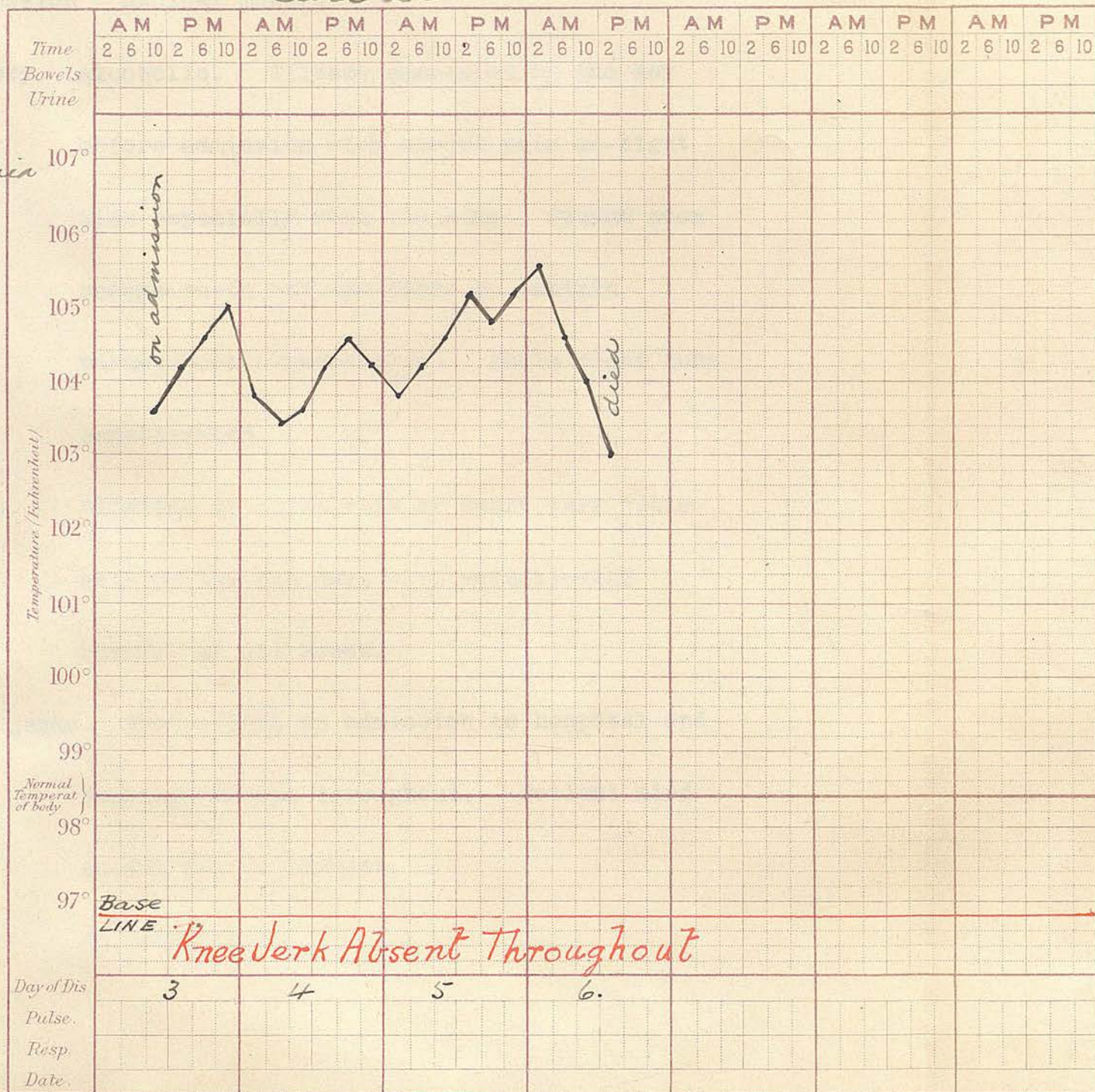
Age

47.

Diet

Case Book No.

Notes of Case



CASE 20

R.S. Age 47

Occupation Cabinet maker.

History. Alcoholic. Illness commenced on the day before admission with severe pain on right side especially when coughing. Sputum soon became rusty and was found to contain pneumococci (Fraenkel's.) Whole right lung consolidated.

Heart. Dilation of right side of heart very noticeable on the 4th day, with soft blowing murmurs in all areas.

Knee jerks. Were absent on admission to hospital and remained absent throughout. Patient died on 6th day of disease.

No post mortem.

Case 21

4 HOUR CHART.

DISEASE.

*Lobar
Pneumonia*

Name

*Ernest
Vernon*

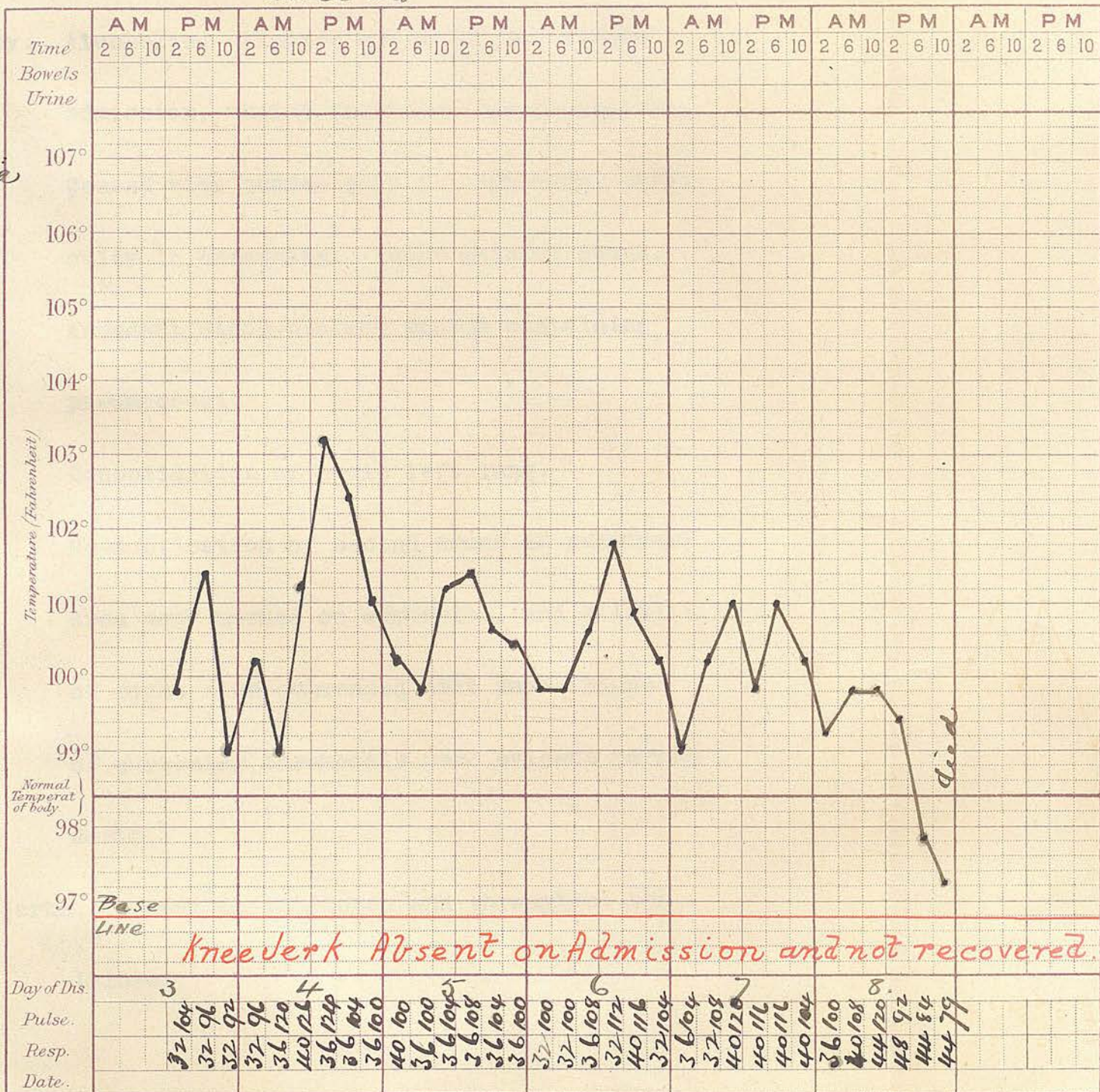
Age

33

Diet

Case Book No.

Notes of Case



Date of admission

Result

CASE 21

E.V. Age 33

Occupation. Pavement artist.

History. Alcoholic. Illness began the day before admission, whilst following his occupation. Ceased with sudden pain in left side. Difficulty in breathing. Short painful cough. Abundant blood-stained sputum containing pneumococci.

Lungs. Consolidation of whole left lung.

Heart Re-duplication of second sound in pulmonary area very marked on admission, and dilation of right side commenced next day. Signs of auricular thrombosis were evident before death.

Knee jerks. Absent on admission and throughout the illness.

4 HOUR CHART.

DISEASE.

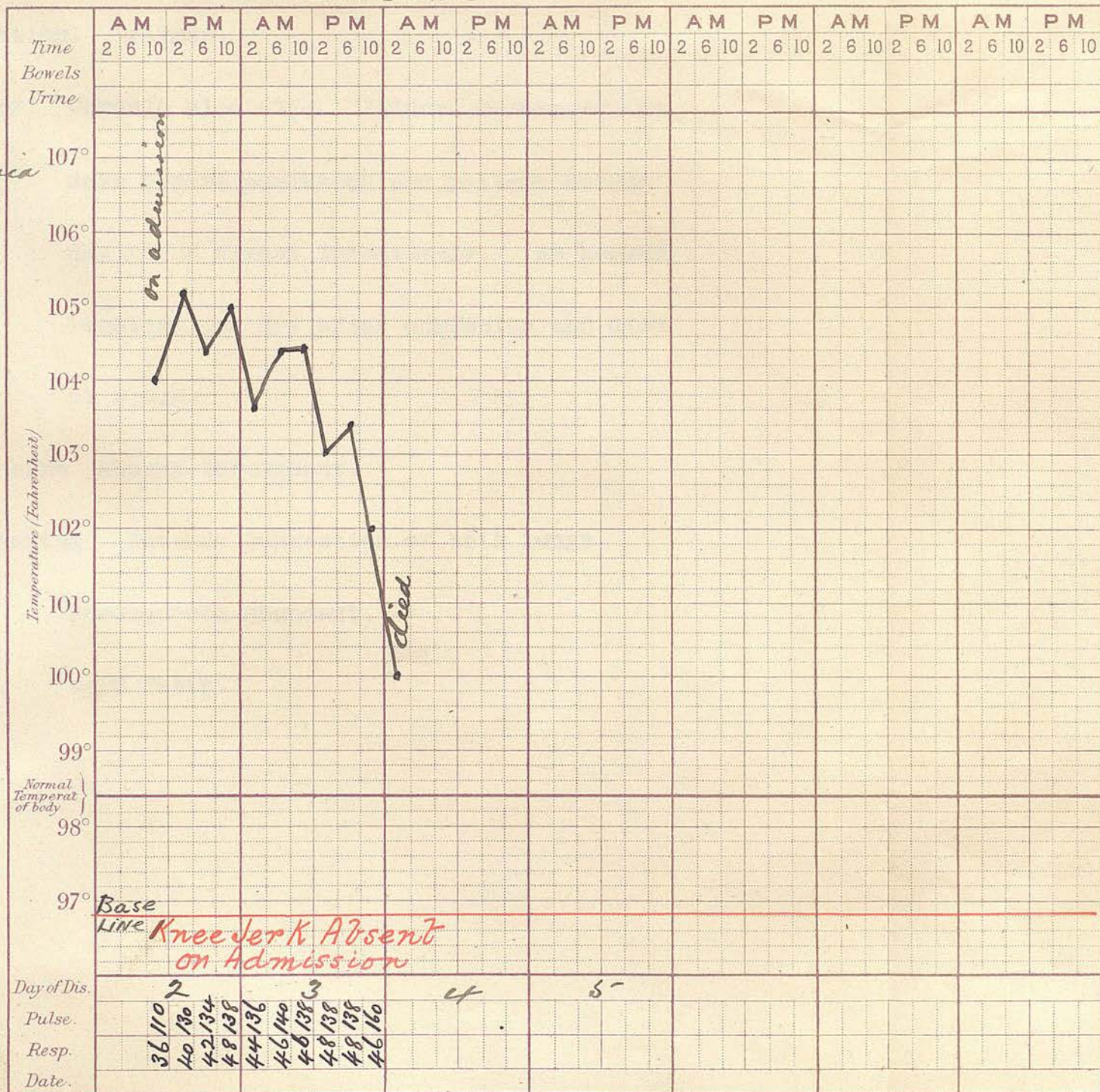
Lobar
PneumoniaName Herbert
Middleton

Age 48

Diet

Case Book No.

Notes of Case



Date of admission

Result

CASE 22

H.M. Age 48

Occupation. Drayman.

History. Chronic alcoholic. Illness commenced two days before admission and patient became delirious almost immediately. He became comatose the day after admission and died at 2 a.m.

Knee jerks Absent throughout.

Post mortem Intense congestion of both lungs.

Pneumococci abundant.

Heart. Very fatty.

Case 23.

4 HOUR CHART.

DISEASE.

*Lobar
Pneumonia*

Name

*Samuel
Mills*

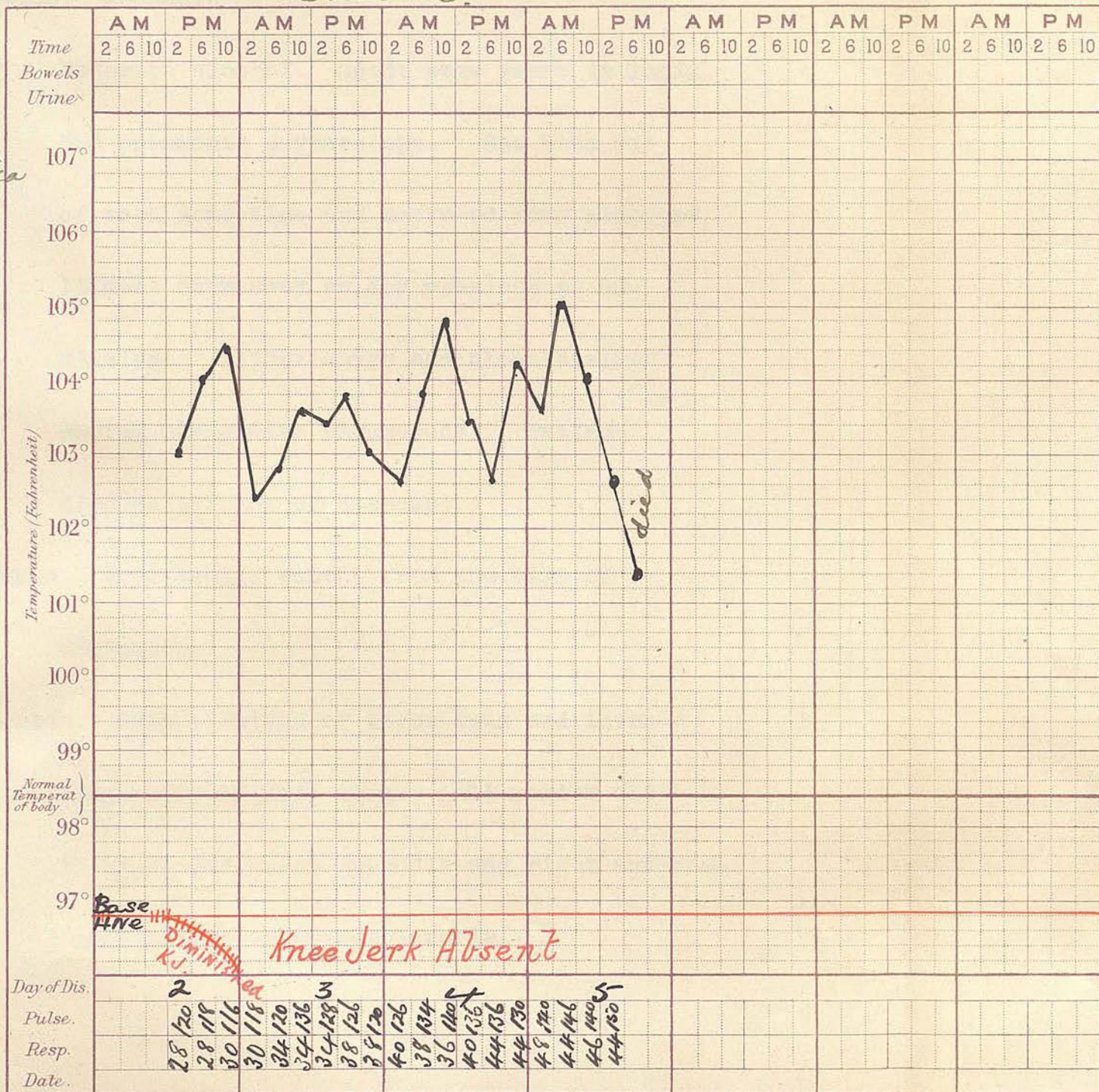
Age

42.

Diet

Case Book No.

Notes of Case



Date of admission

Result

S.M. Age 42

Occupation. Mechanic

History. Moderate alcohol. Spent some years in India.

Had pneumonia 5 years ago. Has been out of work some time and suffered from exposure.

Illness commenced on day previous to admission. Slight cough and blood-stained sputum containing pneumococci. Patient died on 5th day of disease.

Knee jerks. Practically absent from the time of admission.

Post mortem. Consolidation of right lung and intense congestion of left lung. Anti-mortem clot in right auricular appendix and right auricle. Considerable arterio-sclerosis.

Case 24

4 HOUR CHART.

DISEASE.

Lobar
Pneumonia

Name

John
O'Brien

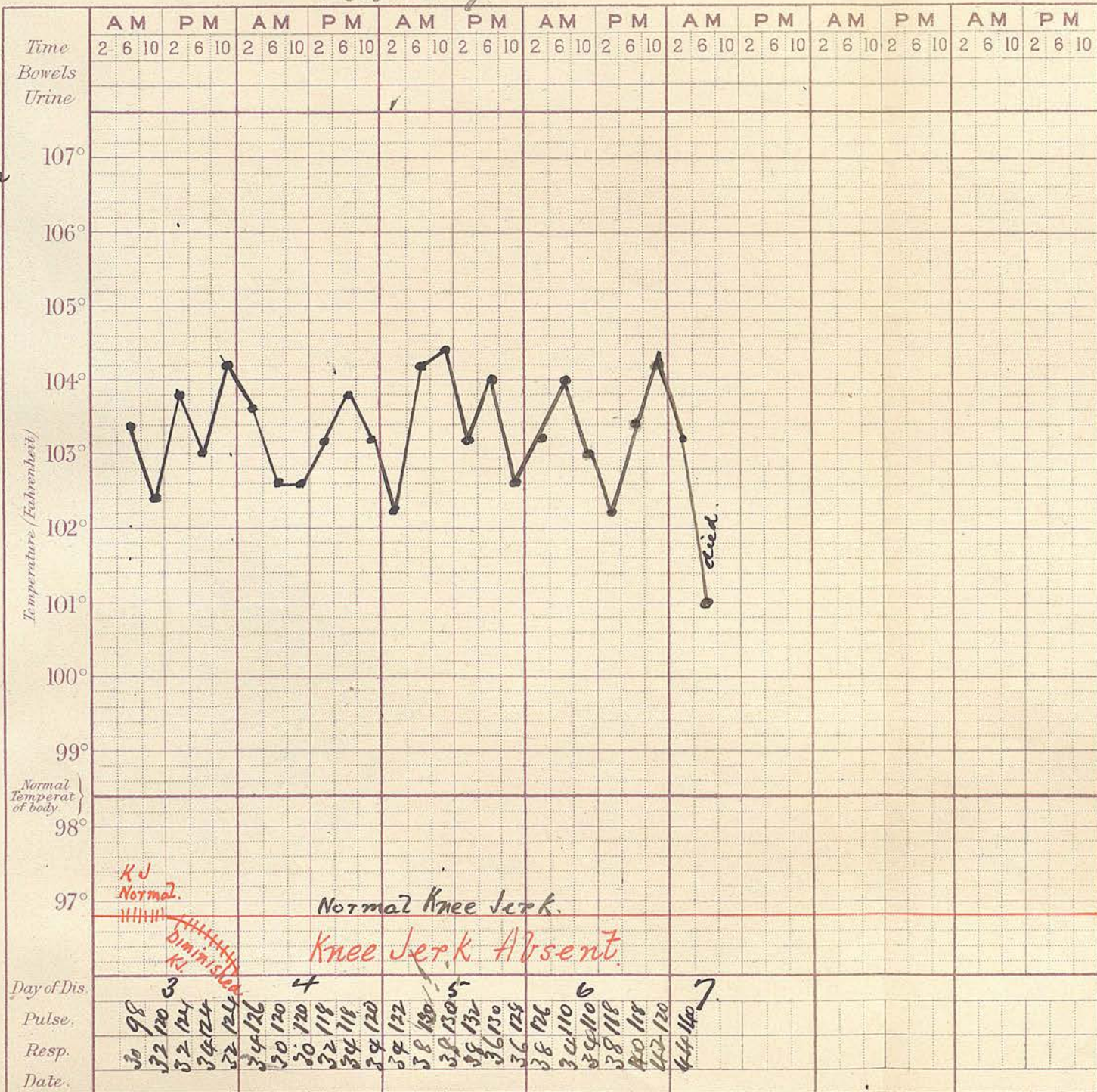
Age

46.

Diet

Case Book No.

Notes of Case



Date of admission

Result

CASE 24

J. D. B. Age 46

Occupation Labourer.

History. Alcoholic. Had been out of work for several weeks and had suffered from exposure. Became ill two days before with severe cough. Sputum blood-stained and contained pneumococci. The whole right lung gave physical signs of consolidation. Considerable low delirium on 5th and 6th days.

Knee jerks When admitted the knee jerks were undoubtedly present, but on the same evening they were doubtful and next day were entirely absent. Patient did not re-act well to stimulation.

Post mortem. Consolidation (Grey Hepatisation) of whole of right lung. Commencing consolidation of upper lobe of left lung.

Heart. Fatty but valves competent.

Case 25

4 HOUR CHART.

DISEASE.

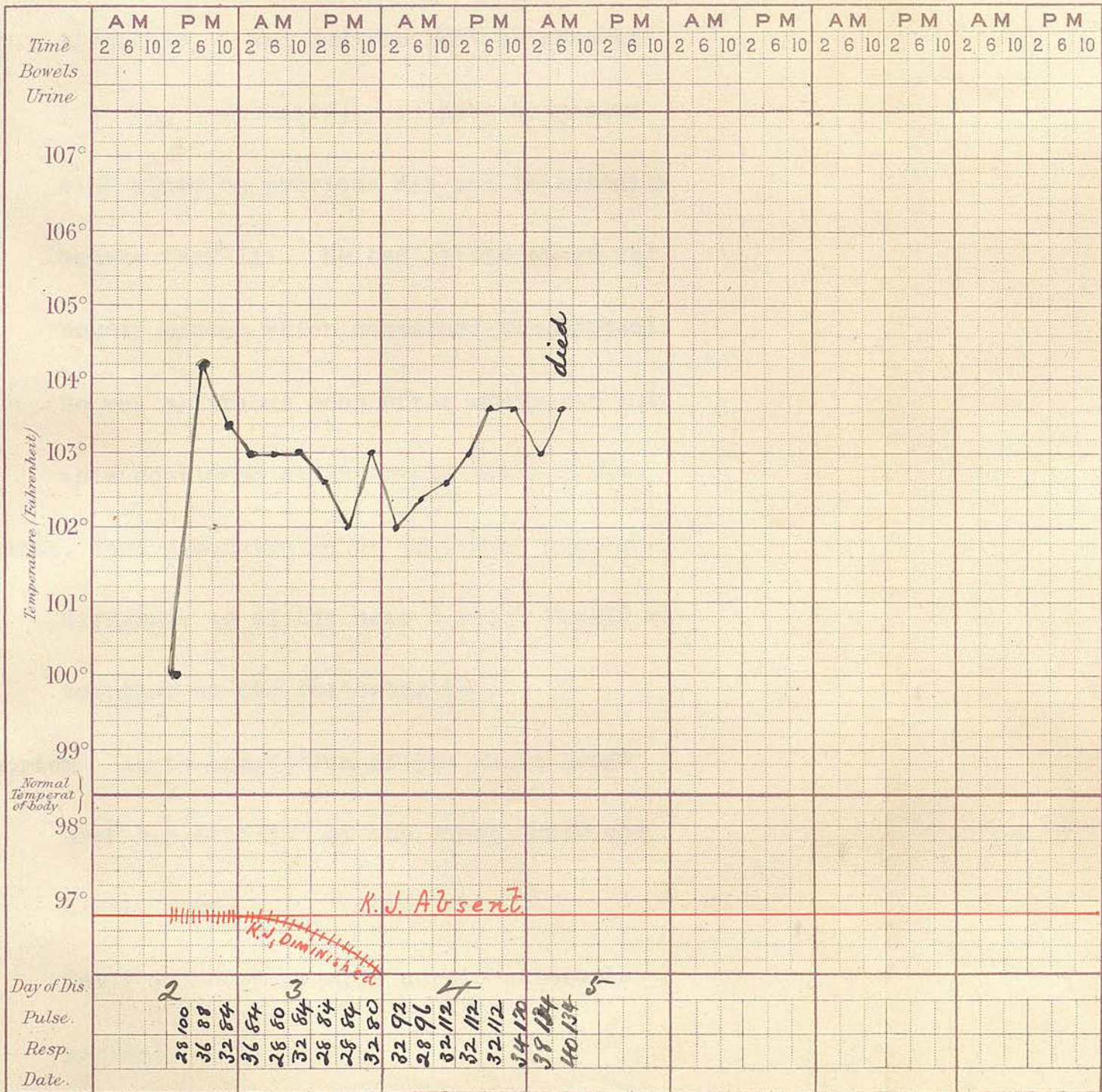
Name *John Dwyer.*

Age *57.*

Diet

Case Book No.

Notes of Case



Date of admission

Result

J.D. Age 57

Occupation. Hawker.

History. Alcoholic. Had had frequent attacks of gout and bronchitis. Illness commenced with rigor on previous day and he speedily became very ill. He had little cough and scanty sputum which contained pneumococci. He was delirious soon after admission and this continued at intervals till the end.

Knee jerks. Were demonstrated on admission but were difficult to elicit next day and absent altogether on the following day.

Post mortem. Acute congestion of the whole lungs
Grey hepatisation of the right upper and middle lungs.

Heart. Fatty and considerable aortic-sclerosis present.

4 HOUR CHART.

DISEASE.

*Lobar
Pneumonia*

Name

*Edward
Knight*

Age

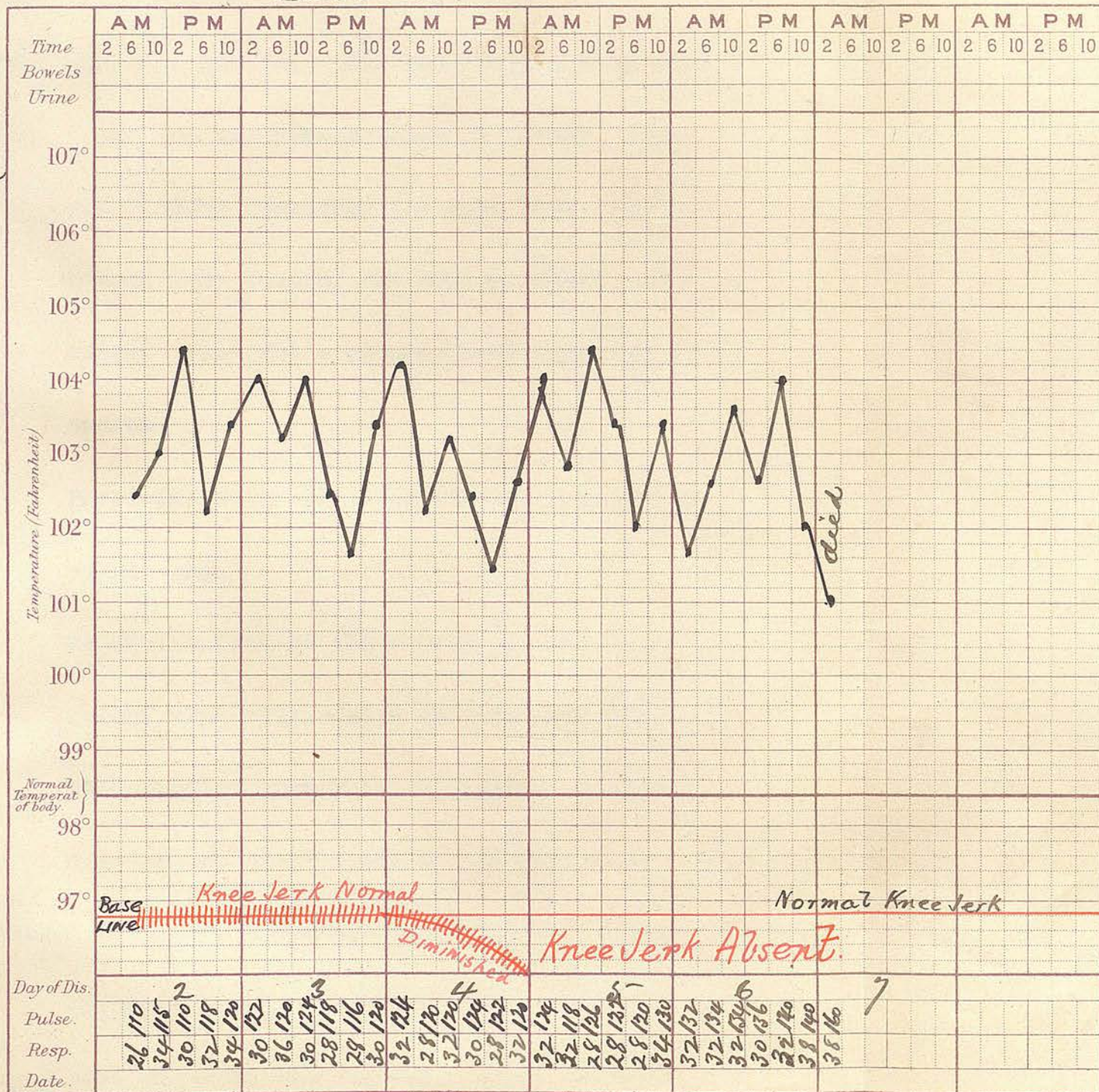
45.

Diet

Case Book No.

Notes of Case

Case 26.



Date of admission

Result

Entered at Stationers Hall.

Printed and Published by Widderspoon & Co. 6, Gate Street, Lincoln's Inn.

Gould's Clinical Chart.

Post mortem. Grey hepatisation whole right lung. EA-

E.K. Age 45

Occupation Filecutter

History Moderate alcohol. Has had Influenza several times and had winter cough for years. Present illness commenced two days ago. Cough became very painful and sputum stained with blood. Fraenkel's pneumococci numerous in sputum.

Lungs Physicial signs of consolidation over whole right lung.

Heart Re-duplication of the second sound in pulmonary area very marked on admission with soft blowing sounds in all areas. Marked dilation of right heart on the 6th day.

Knee jerks Normal on admission and until the evening of the 4th day. Absent on 5th day. Death took place on the 7th day.

Post mortem. Grey hepatisation whole right lung. Extreme congestion of left. Antimortem clot in right auricular appendix.

4 HOUR CHART.

Case 27.

DISEASE.

Lobar
Pneumonia

Name

James
Ellis

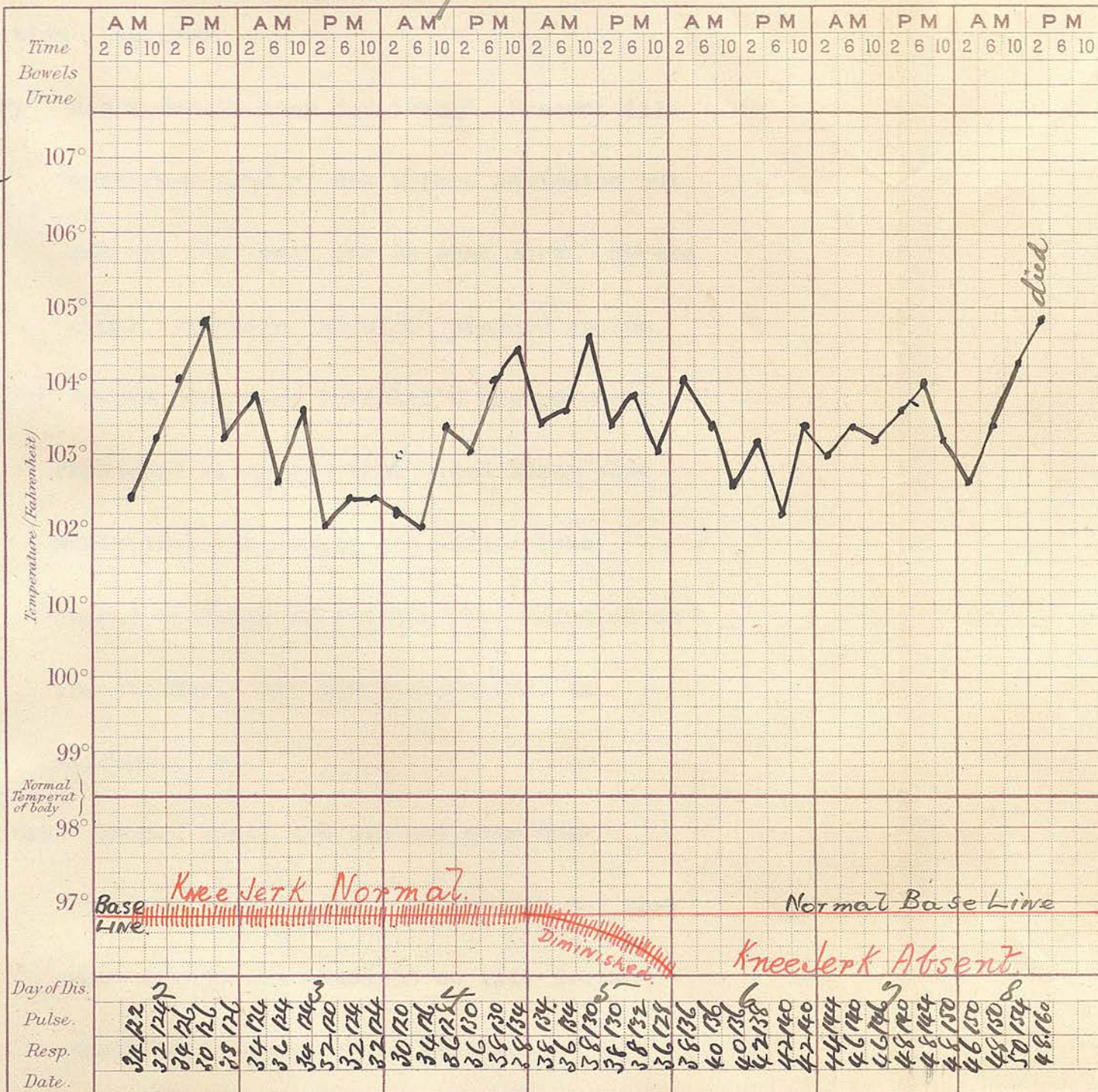
Age

28.

Diet

Case Book No.

Notes of Case



Date of admission

Result

CASE 27

J.E. Age 28

Occupation Labourer

History Has recently been "on tramp". Present illness commenced on day before admission but had not felt well for several days. Severe cough with pain and blood stained sputum. Sputum contained Fraenkel's pneumococci.

Lungs Physicial signs of right sided lobar pneumonia involving upper and middle lobe

Heart Showed tendency to weakness and dilation on the 4th day. Did not respond well to strophanthus.

Knee jerks Normal until the 5th day when they appeared less active. On the 6th day they were absent and remained so till death which took place on the 8th day.

Post mortem. Whole right lung showed grey hepatisation, and commencing consolidation of upper lobe of left lung.

Case 28.

Notes of Case



CASE. 28

C. T. Age 39 Married. 4 Children.

Occupation Hawker

History Present illness began two days before admission. Severe pain on left side and vomiting. Cough which gave great pain.

Lungs Consolidation of left lower lobe.

Progress. On the 8th day pericardial friction became evident, and although she seemed somewhat better next day, she died on the 11th day. Fraenkel's pneumococci were abundant in the sputum.

Knee jerk Normal on admission, but disappeared on the 6th day and remained absent during the remainder of the illness.

No post mortem.

4 HOUR CHART.

Case 29.

DISEASE.

Lobar
Pneumonia

Name

Ernest
Ratcliffe

Age

36.

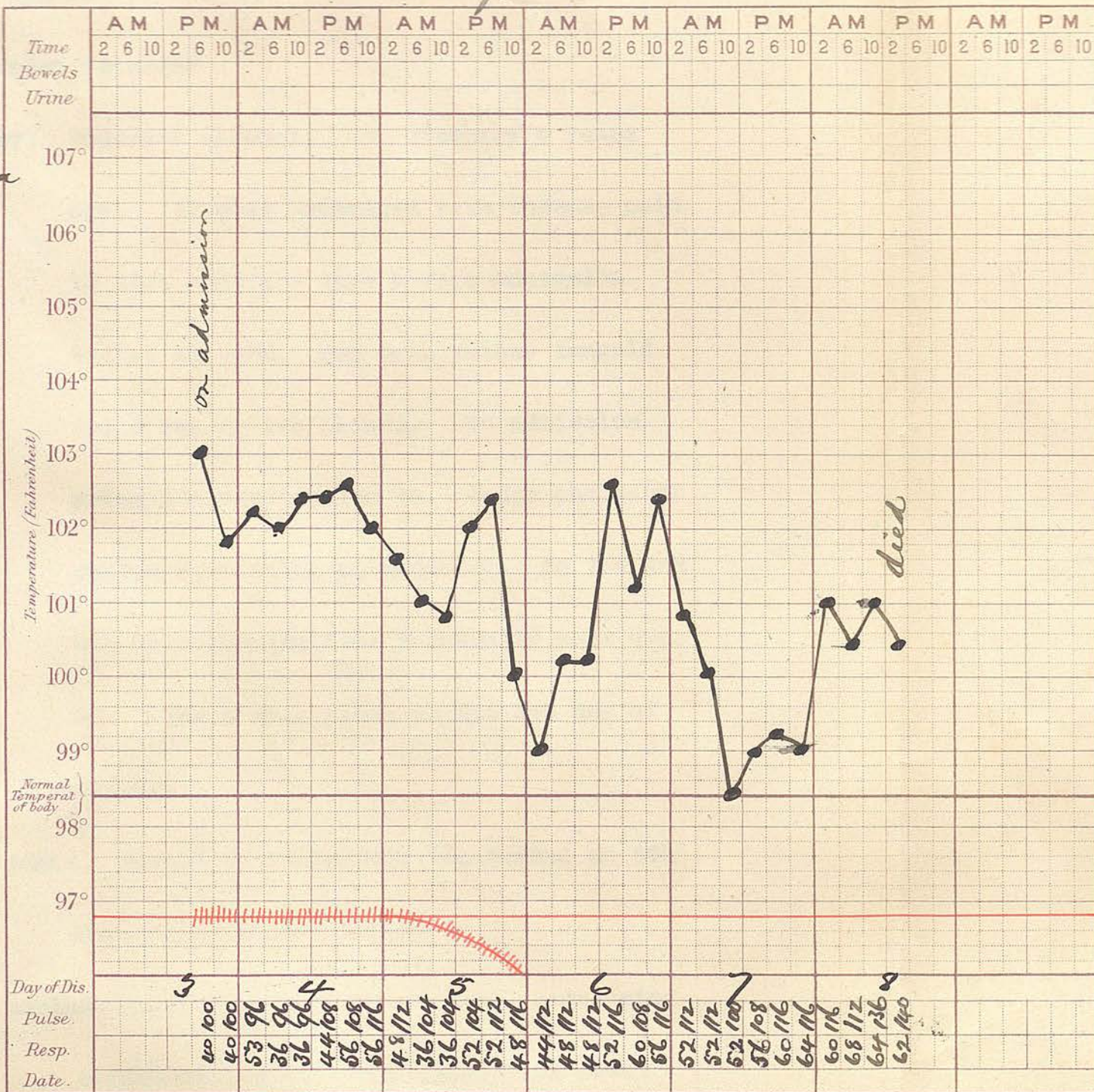
Diet

Case Book No.

Notes of Case

Date of admission

Result



CASE 29

E.R. Age 36

Occupation Moulder

History. Moderate alcohol. Had dysentery 6 years ago. Illness commenced with intense pain in left side two days before admission whilst at work. Had been rather languid for a day or two before. On admission pulse 100, respiration 40. Cough and rusty sputum containing pneumococci. On 7th and 8th days respirations frequently were over 60. Death took place on the 8th day of disease.

Knee jerks. Normal on admission. Diminished on 5th day. Absent on 6th day.

Post mortem. Consolidation of left lung, commencing consolidation of right lung, with great congestion.

Heart. Dilated and containing anti-mortem clot in right auricular appendix.

4 HOUR CHART.

DISEASE.

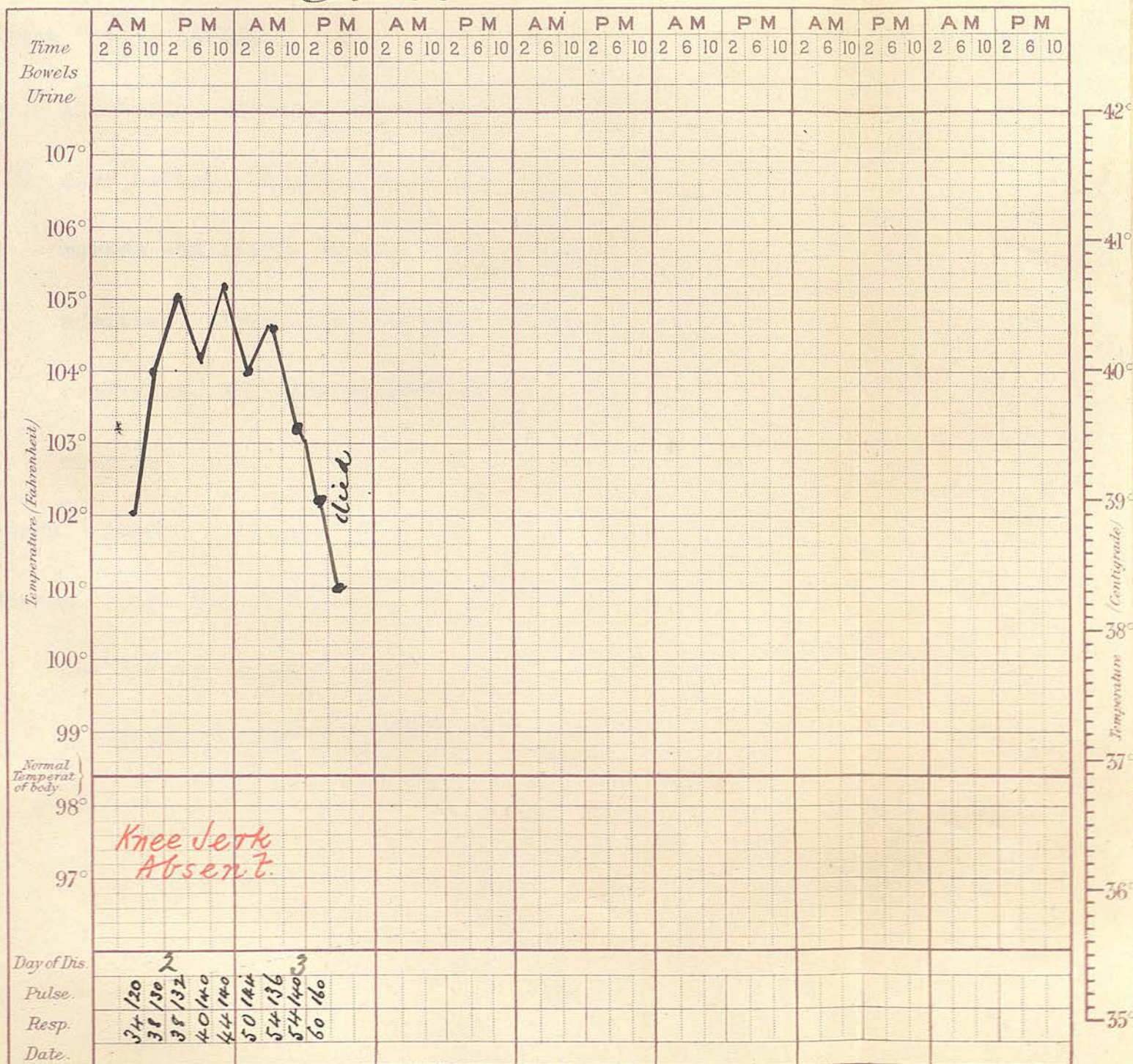
Name { Samuel
Aitken
Age 44
Diet
Case Book N^o

Notes of Case

Date of admission

Result

Case 30



CASE 30

S.A. Age 44

Occupation. File cutter

History. Alcoholic. Seized with sudden illness two days before. Neither pain nor cough very marked and little sputum. Delirious when admitted. Gradually sank into comatose condition, and died second day after admission.

Knee jerks Absent throughout.

Post Mortem. Grey hepatisation of whole right lung and intense congestion of left lung. Pneumococci abundant in practically pure culture.

4 HOUR CHART.

DISEASE.

*Lobar
Pneumonia*

Name *Robt.
Atkinson*

Age *18.*

Sex

Case Book N^o

Notes of Case

Date of admission

Day of Dis.

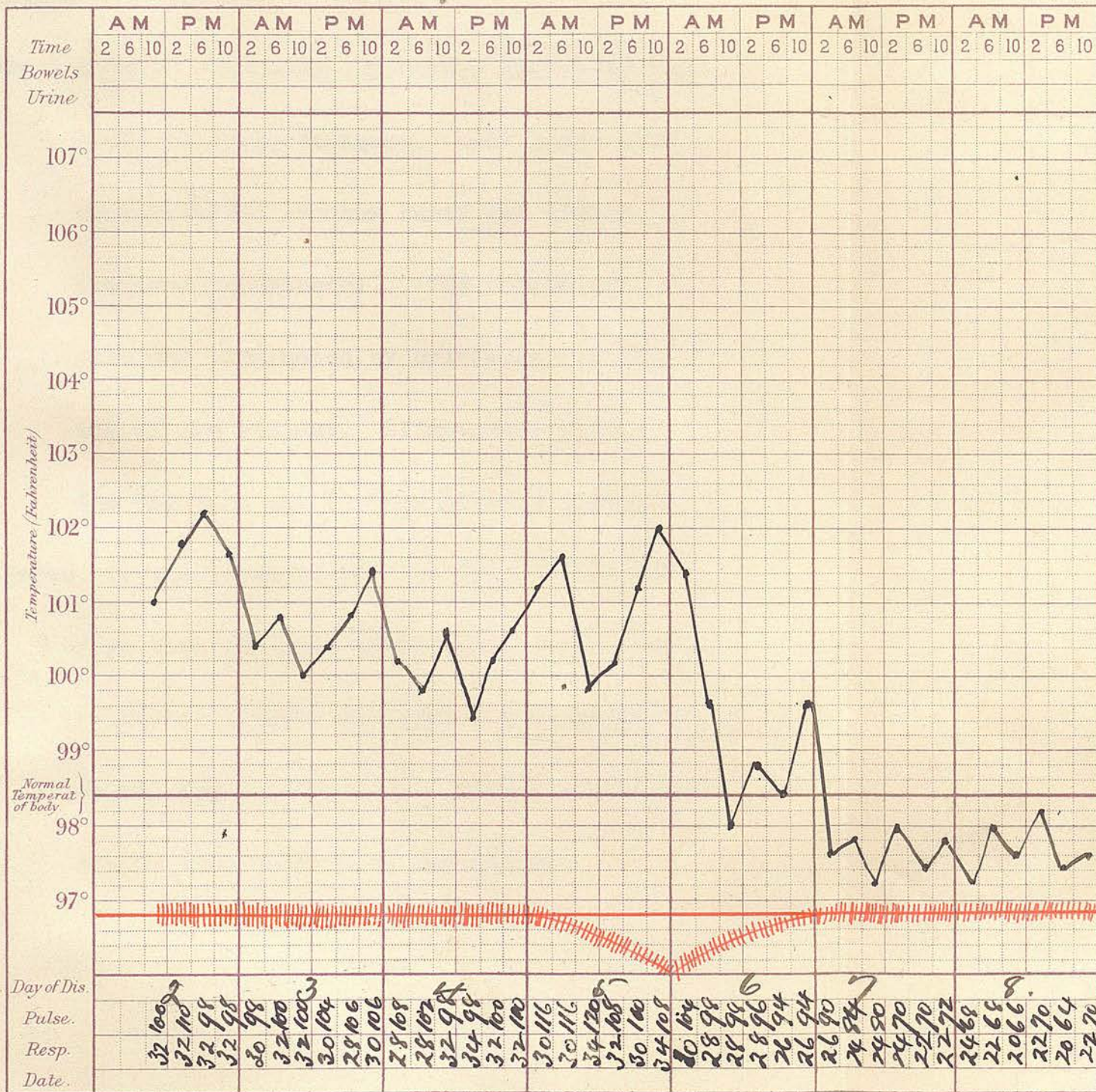
Pulse.

Resp.

Date.

Result

Case 31



CASE 31

R.A. Age 18

Occupation Newsvendor

History. Illness commenced day before admission with rigor and some sickness. Left lower lobe consolidated. Sputum rusty and showed numerous pneumococci. The attack was mild and terminated by crisis on the morning of the 6th day. Slight rise again in the evening, and further history uneventful.

Knee jerks. In this case except for the 5th and 6th days when the knee jerks could only be got with considerable difficulty they appeared to be normal throughout. This was probably due to the mildness of the attack.

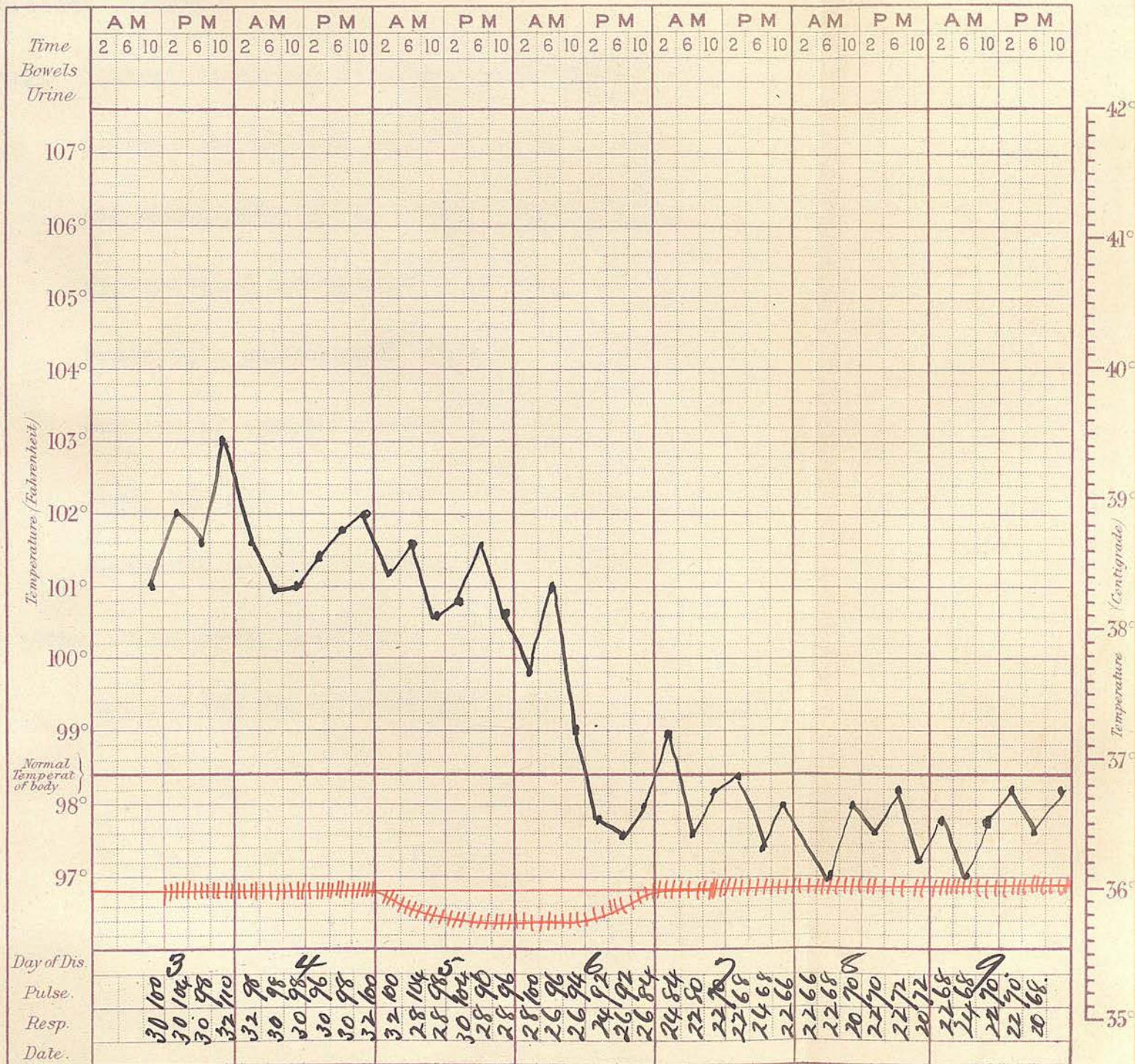
4 HOUR CHART.

DISEASE.

Name *Robert Entwistle*
 Age *38.*
 Diet
 Case Book No.

Notes of Case

Case 32



Date of admission

Day of Dis.

Pulse.

Resp.

Date.

Result

R.E. Age 38

Occupation. Vanman.

History. Illness commenced two days before admission.

He felt ill and had short cough which gave

him acute pain in the right side. Sputum

bloodstained and plentiful on admission.

Fraenkel's pneumococci present. The case

was one of typical pneumonia of the right

lung, and ran an ordinary course, the crisis

occurring on the 6th day.

Knee jerks. were never completely absent but on the

5th and 6th days were diminished.

4 HOUR CHART.

Case 33

DISEASE.

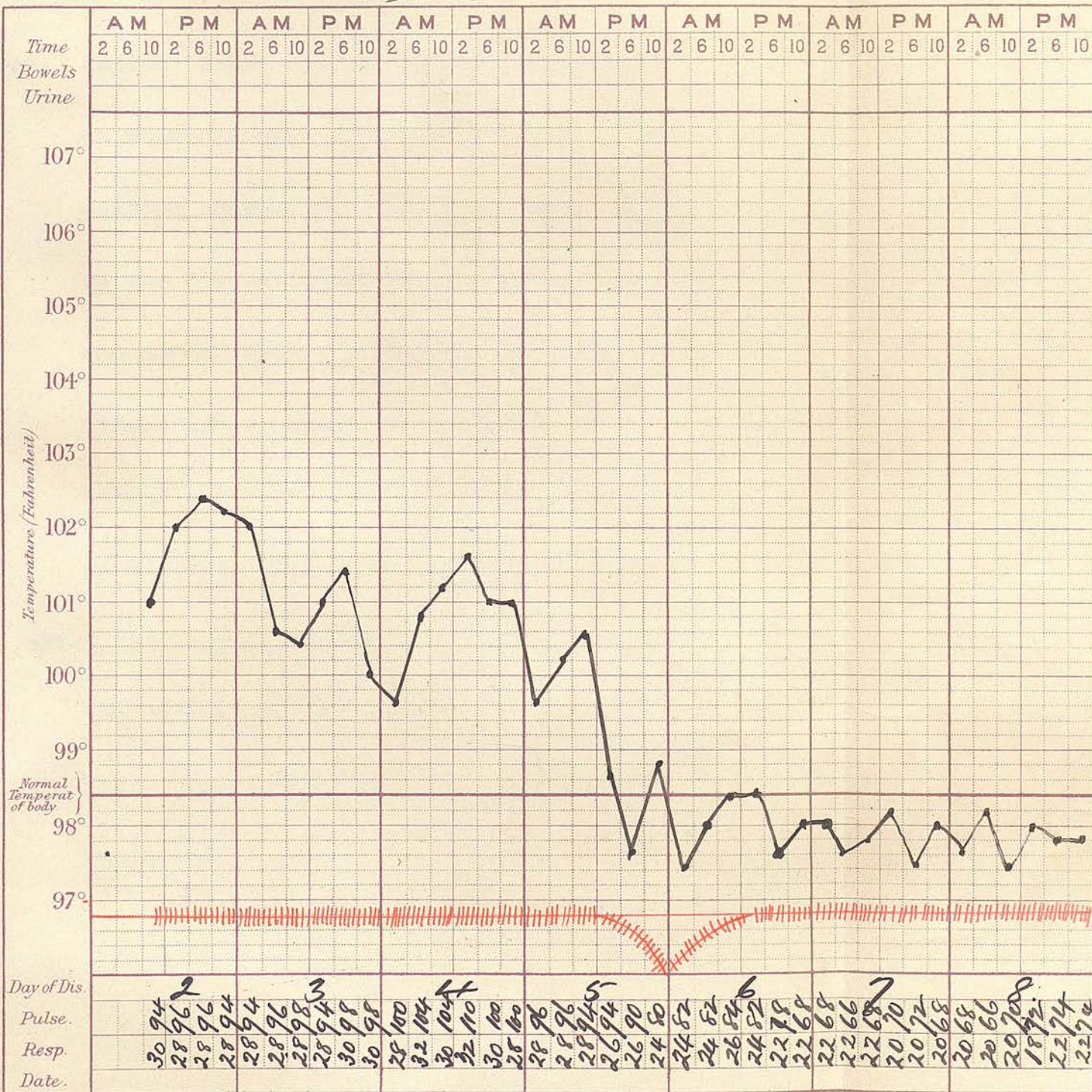
Name *James Stokes*

Age *23*

Diet

Case Book N^o

Notes of Case



Date of admission

Result

J.S. Age 23

Occupation. Labourer in foundry.

History. Patient taken with a "stitch in the side" on previous day. Felt ill and had short painful cough. No sickness. Rusty sputum on the day after admission, contained numerous pneumococci. The left upper and middle lobes became consolidated. The patient, however, stood the attack well, the crisis occurring on the 5th day.

Knee jerks. Did not disappear at any time, but on the evening of the 5th day, immediately after the crisis, they were undoubtedly diminished.

4 HOUR CHART.

Case 34

DISEASE.

Lobar
Pneumonia

Name

Thomas
McHroy.

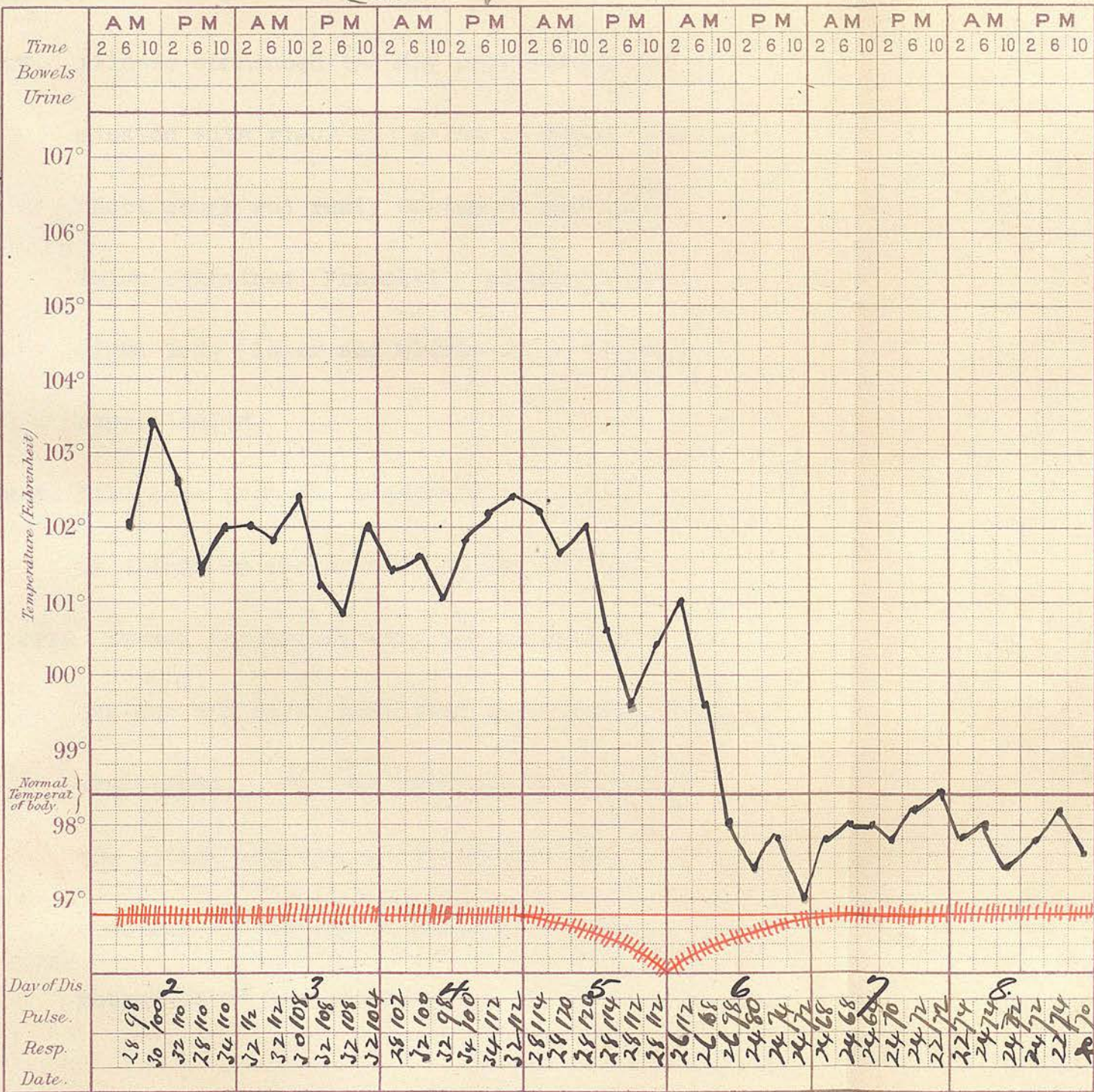
Age

22.

Diet

Case Book N^o

Notes of Case.



Date of admission

Result

CASE 34

T. Mc.J. Age 22

Occupation, Bricklayer's labourer.

History. Illness commenced the day previous to admission with rigor and pains in right side. Short cough and rusty sputum on admission which contained Fraenkel's pneumococci. Right lung (lower and middle lobe) became consolidated.

Progress. Mild case from the beginning and terminated by crisis on the evening of the 5th day.

Knee jerks. Normal throughout with the exception of 5th and 6th days, when they were undoubtedly diminished. In this case the mildness of the attack and the age of the patient are probably sufficient to account for the retention of the knee jerks.

DISEASE.
Phthisis

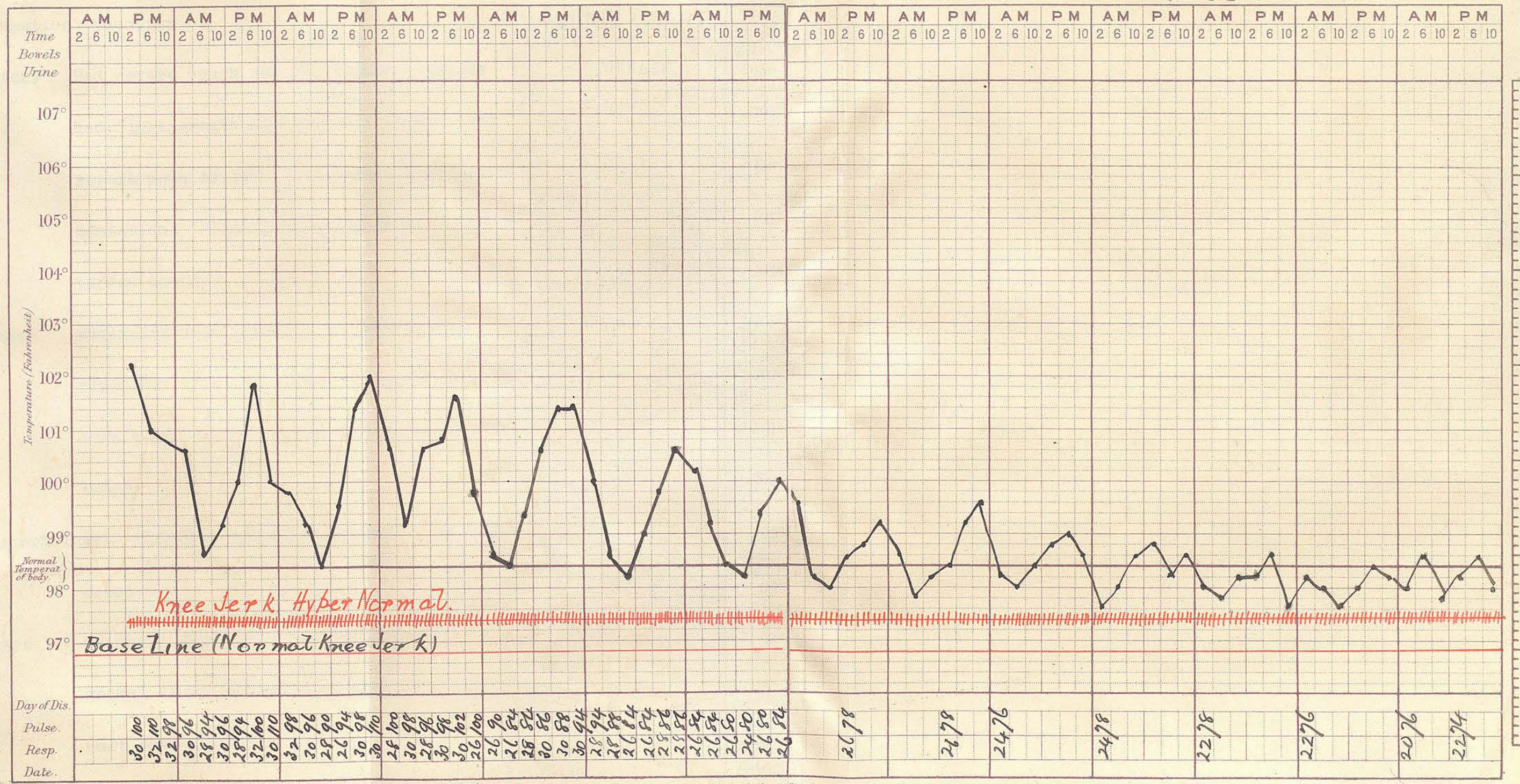
Name *Robert*
Burnet.

Age *34.*

Diet

Case Book No.

Notes of Case



CASE 35.

R.B. Age 34

Occupation Labourer

History Had severe cough for six months. Lately had night sweats and has lost flesh. Had severe pain in left side three days before admission. Noticed that the sputum contained blood.

Lungs. Extensive consolidation of both lungs. Physical signs of cavity in upper part of left lung. Moist sounds throughout both lungs.

Bacteriology. Tubercle bacilli numerous. No pneumococci.

Heart Slightly enlarged. Re-duplication of the second sound in the pulmonary area and soft systolic murmur.

Knee jerks. Distinctly hyperactive and remained in this condition during the whole of his stay in hospital.

4 HOUR CHART.

DISEASE.

Phthisis

Name William Johnson
Age 38.

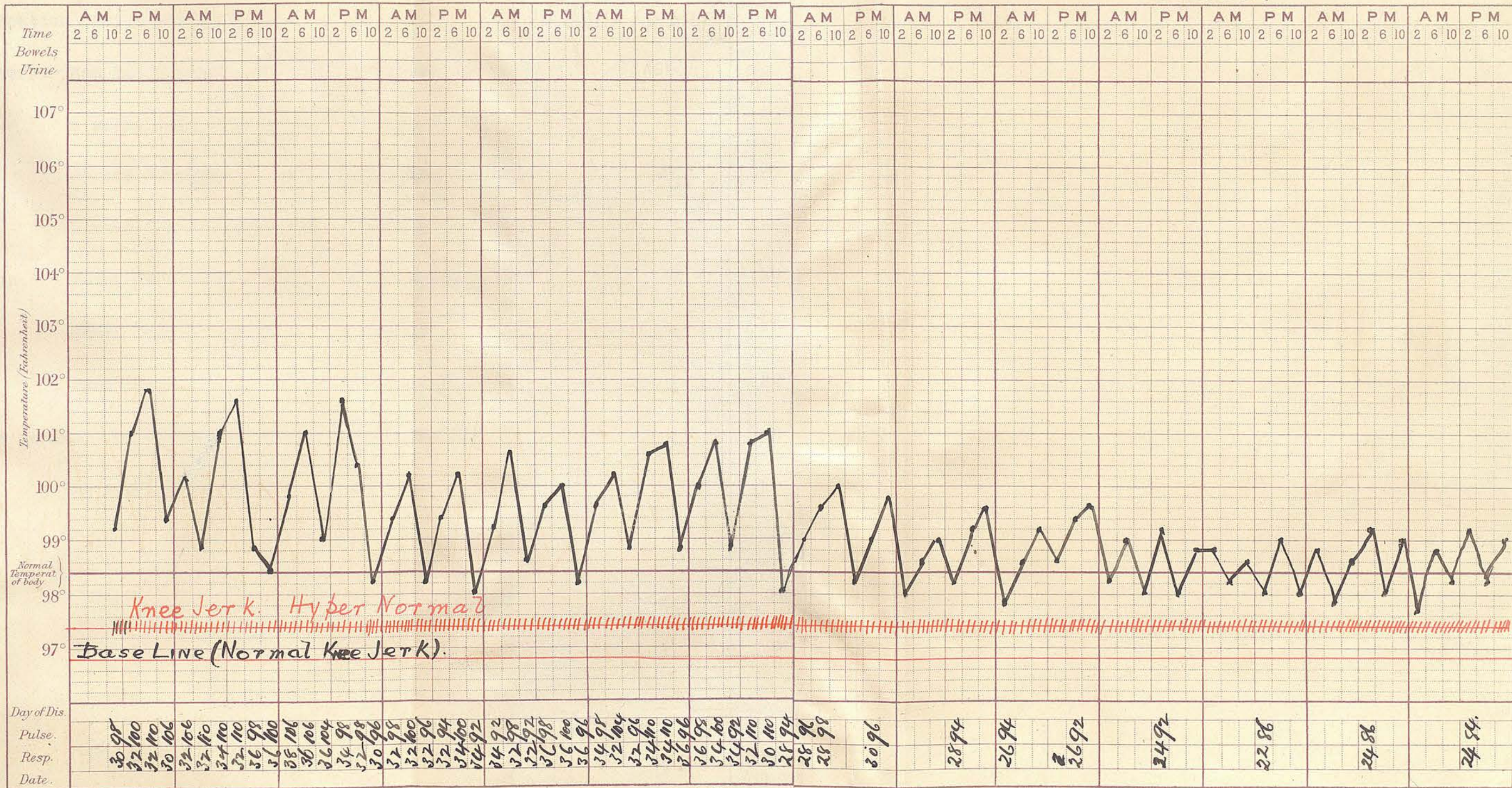
Case Book No.

Notes of Case

Date of admission

Result

Case 36.



W.J. Age 38

Occupation Metal polisher.

History. Has had a cough for over two years, but not a great deal of sputum, except on rising in the mornings. Says he "caught a cold" a week ago and commenced to spit blood.

Lungs. Extensive consolidation of both apices with moist sounds especially noticeable at the left base. Sputum showed tubercle bacilli.

Knee jerks. were very active throughout the time he remained in hospital.

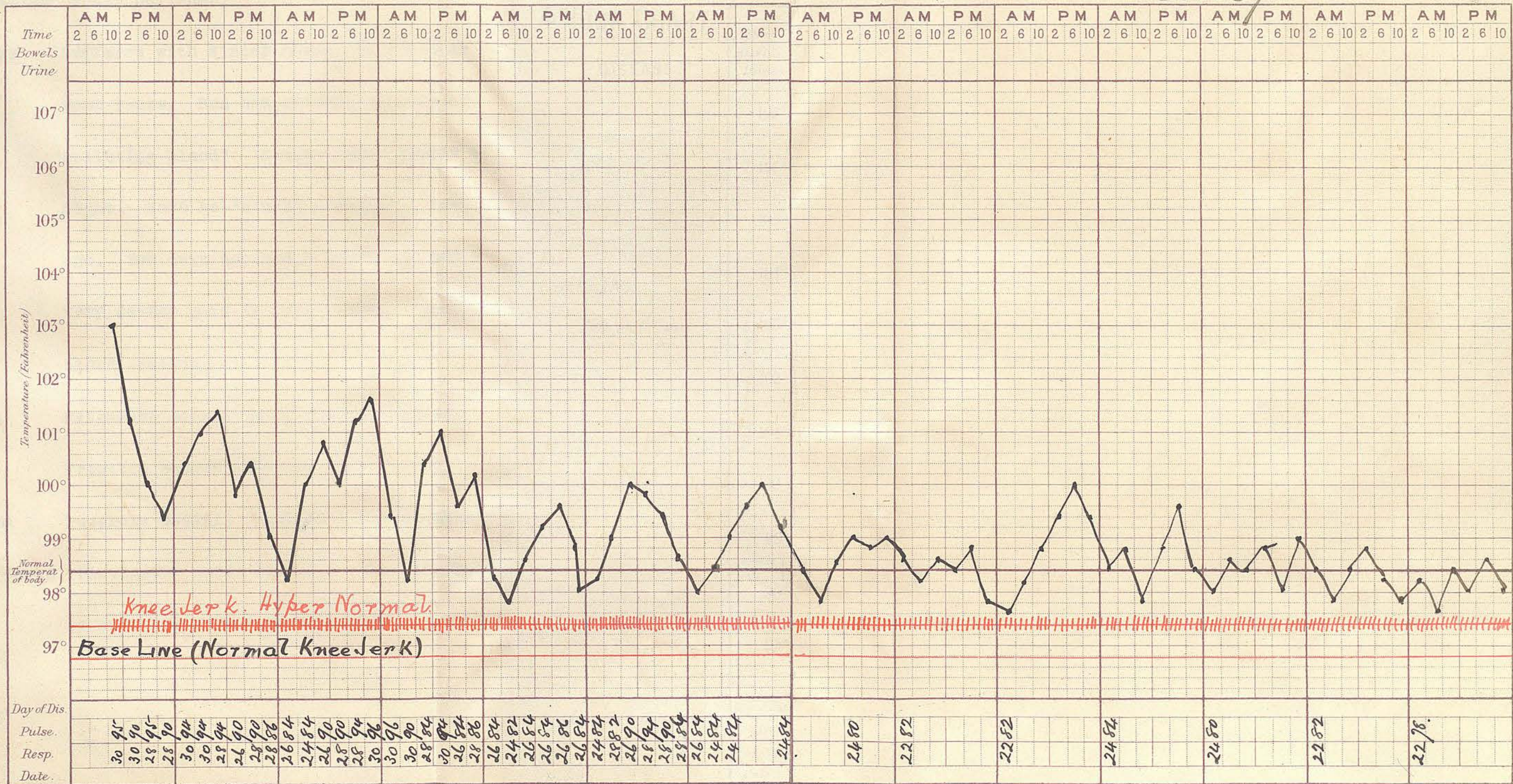
4-HOUR CHART.

DISEASE.

Phthisis

Name *John Thompson*
Age *38.*

Case Book N^o



J.T. Age 38

Occupation Brass polisher.

History Suffered with Winter cough for three or four years. Had had several attacks of "splitting blood" Sweats considerably at night. Says he "caught a chill" a week ago. Two days ago had a rigor and had a very severe pain in right side. Sputum blood stained.

Lungs. Extensive consolidation of both lungs. Friction sounds over the right lower lobe.

Sputum Tubercle Bacilli abundant. No pneumococci.

Knee jerks. Distinctly above normal. Did not appear to be below normal at any stage.

4 HOUR CHART.

DISEASE.

Phthisis

Name

John Kirkman

Age

32.

Case Book No.

Notes of Case

Temperature (Fahrenheit)

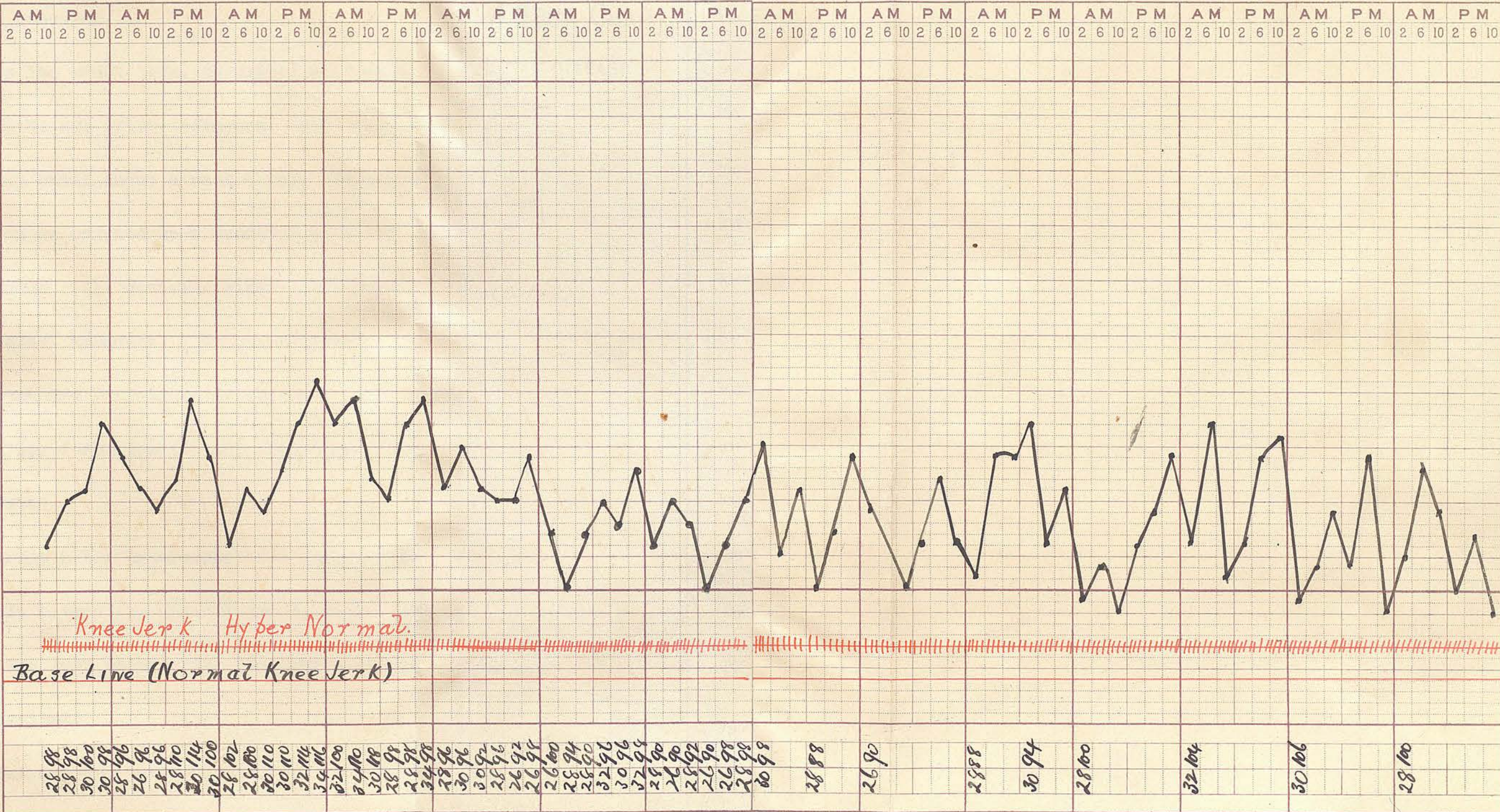
Normal Temperature of body

Day of Dis.

Pulse.

Resp.

Date.



CASE 38

J.K. Age 32

Occupation Labourer.

History. Has led rough life. Developed a cough 6 months ago after influenza. Felt fairly well until about a week before admission when he coughed up a quantity of blood. Sputum still contains blood. Tubercle Bacilli abundant. No pneumococci.

Lungs Extensive consolidation of both lungs, with cavity formation in left infra-clavicular region.

Knee jerks. Distinctly hypernormal and remained so till within two days of death, which took place four weeks after his admission to hospital.

Post mortem. Extensive tubercular disease of both lungs.

4 HOUR CHART.

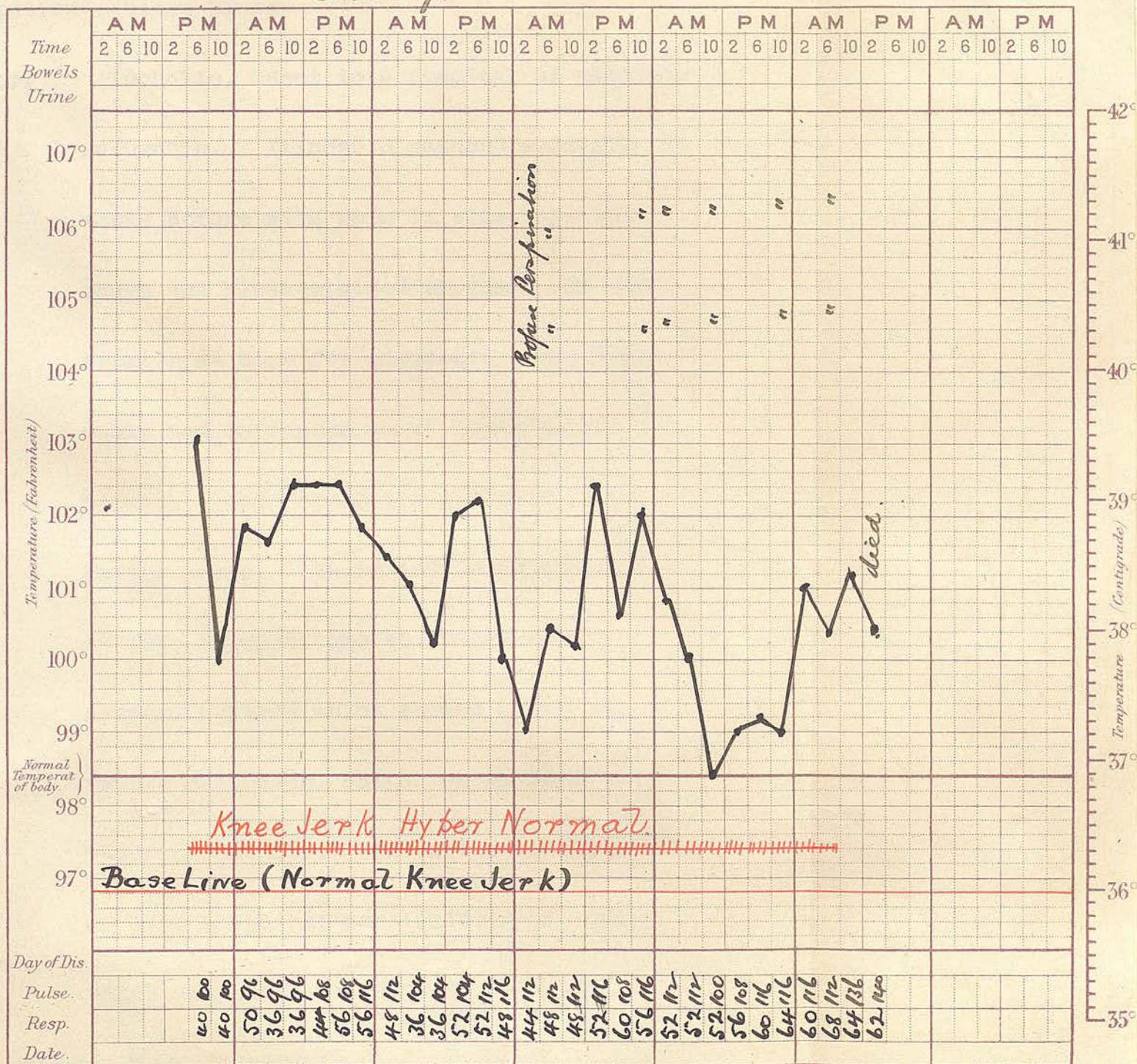
DISEASE.

Phthisis

John
Williams
42.

Case Book No.

Notes of Case



Entered at Stationers Hall.

Printed and Published by Widderspoon & Co. 6, Gate Street, Lincolns Inn.

Gould's Clinical Chart,

J.W. Age 42

Occupation Glass blower

History. Alcoholic. Sent into hospital as probable pneumonia. Illness commenced suddenly two weeks before with pain in side. Severe cough and blood-stained sputum. He was treated at home for pneumonia. Had previously had influenza about three months before. Had frequently suffered from severe cough. On admission temperature of 103, respirations 40. Malar flush. Abundant sputum which showed numerous septic organisms, but no pneumococci or tubercle bacilli. Extensive consolidation of both lungs but particularly of right which suggested unresolved pneumonia.

Knee jerks. Were distinctly exaggerated up to the morning before death when they were last tested.. P.M. showed extensive tubercular disease most of which was recent.

4 HOUR CHART.

DISEASE.

Phthisis

George
Dando

33.

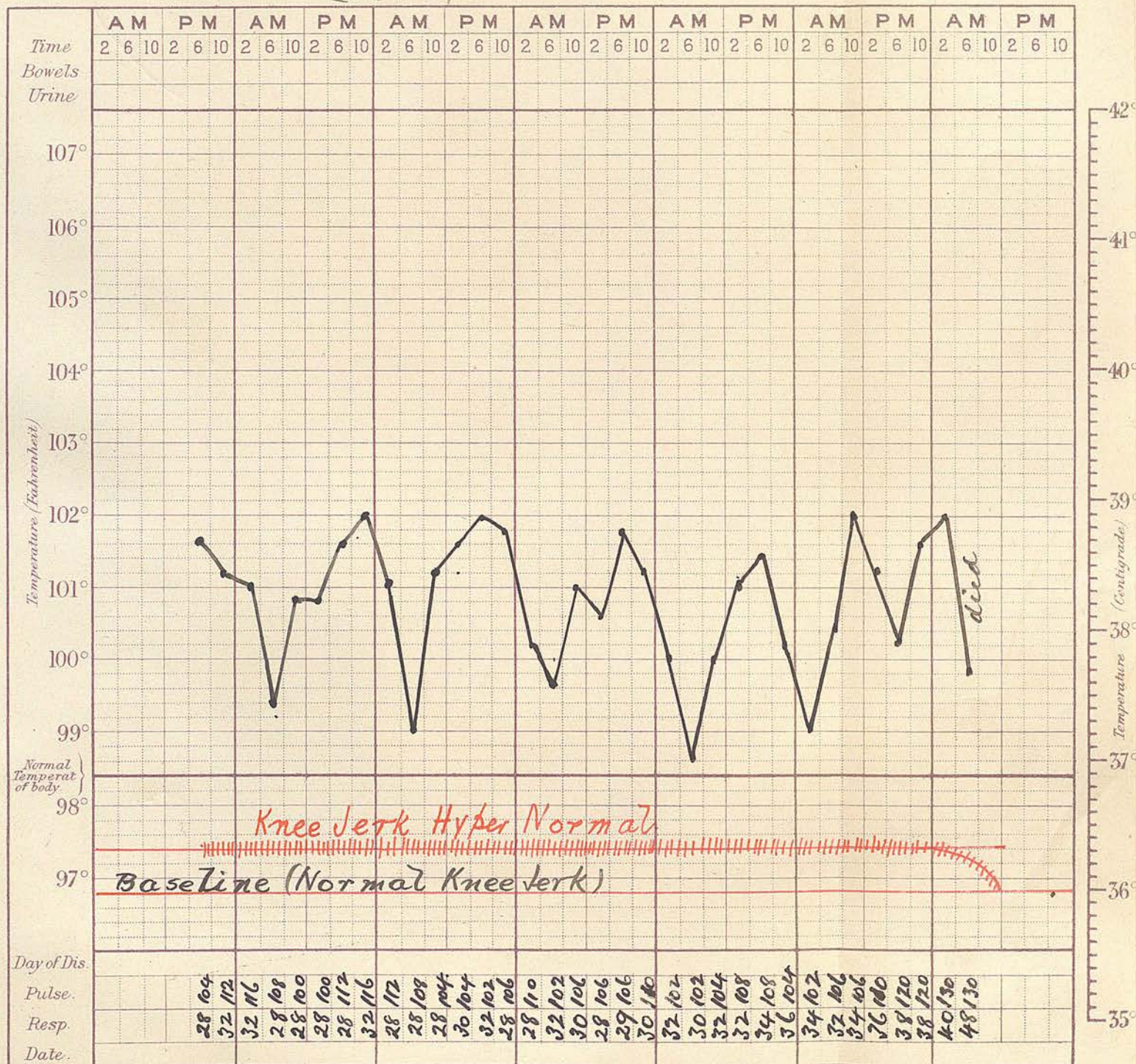
Net

Case Book No.

Notes of Case

Date of admission

Result



G.D. Age 33

Occupation Tool grinder.

History Has had several attacks of influenza during the last five years. Had cough each time. Has scarcely even been without cough for the last twelve months. Has also lost considerably in weight. Felt fairly well until a fortnight ago when he had a violent fit of coughing and brought up some blood. He has gradually got worse since. Complains of pain in upper part of chest on both sides. Large amount of blood-stained sputum, containing numerous T.B's. and other organisms but no pneumococci.

Lungs. Physical signs of extensive consolidation in both lungs. Also cavity formation in both apices.

Patient died on 7th day after admission.
P.M. confirmed the above.

Knee jerks Hypernormal throughout.

Hour Chart.

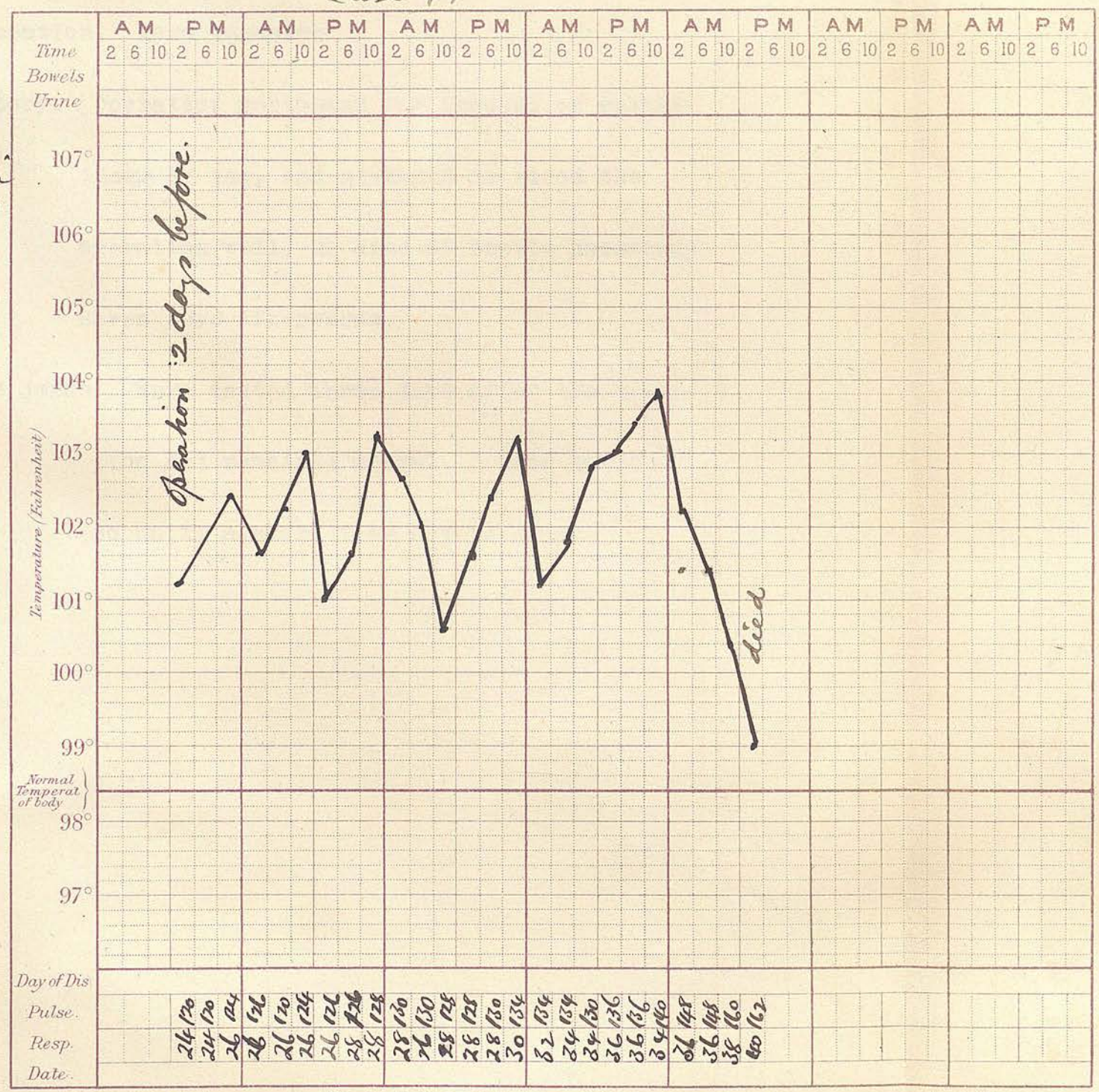
DISEASE.
*Septic
Pneumonia
(after operation)
Wm
Gorman
62*

Notes of Case

Date of admission

Result

Case 41



W.G. Age 62

Occupation, Farm labourer.

History. Operation performed for removal of epithelioma of jaw, and although he stood the operation well, he died of septic pneumonia seven days afterwards.

Knee jerks Were tested three days after the operation and remained normal. They remained so until a short time before death.

Case 42

DISEASE.

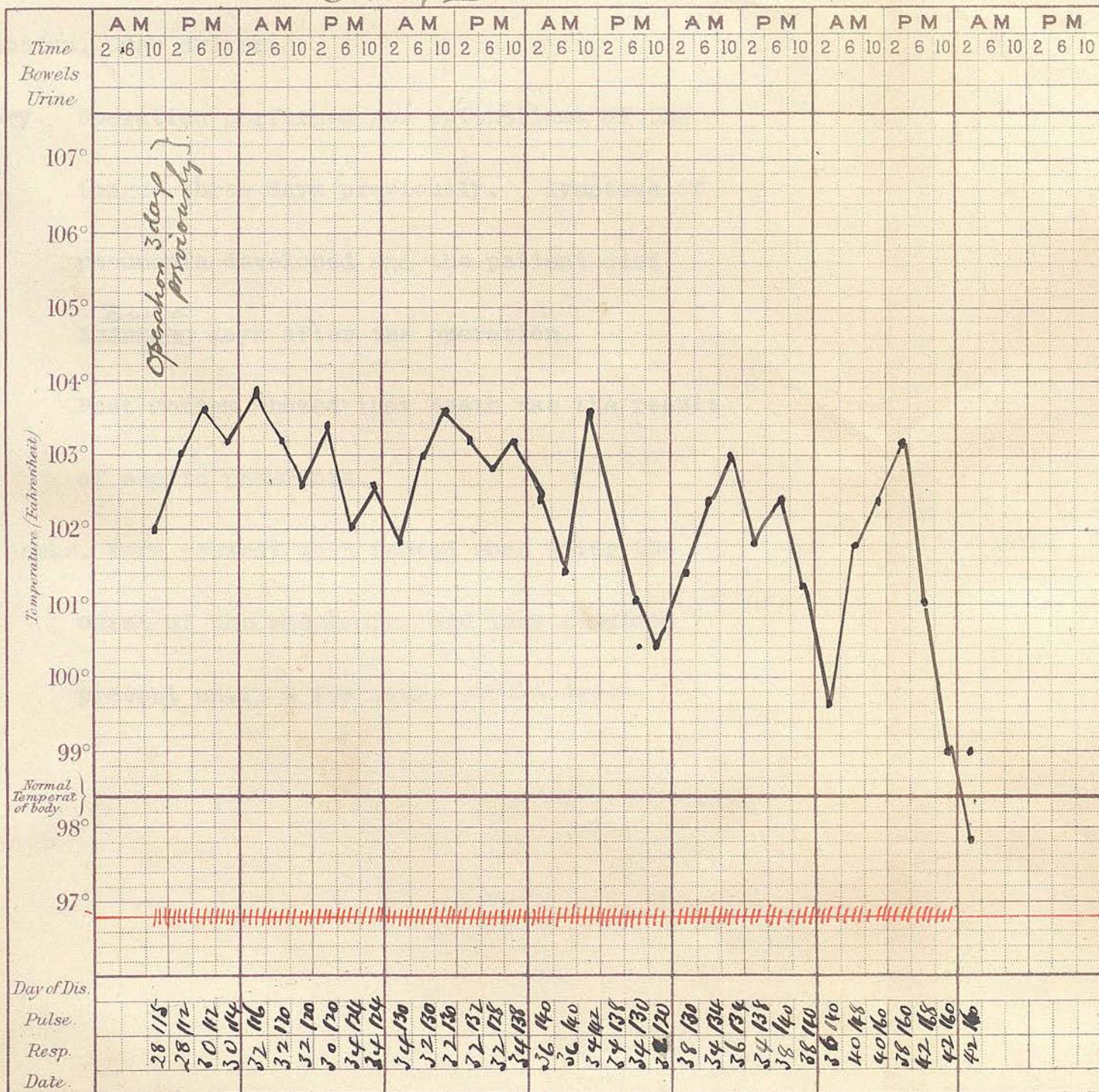
*Lepth
Pneumonia*

*Robert
Johnson
57*

Notes of Case

Date of admission

Result



CASE. 42

R.J. Age 57

Occupation, Cab driver.

History. Operation performed for epithelioma of the tongue three days previously. Symptoms of pneumonia developed and the patient died ^{nine}~~thirteen~~ days after the operation.

Post mortem showed that death was the result of septic pneumonia.

Knee jerks. Were present when tested soon after the onset of the pneumonia, and they remained present until a few hours before death.

Case 43.

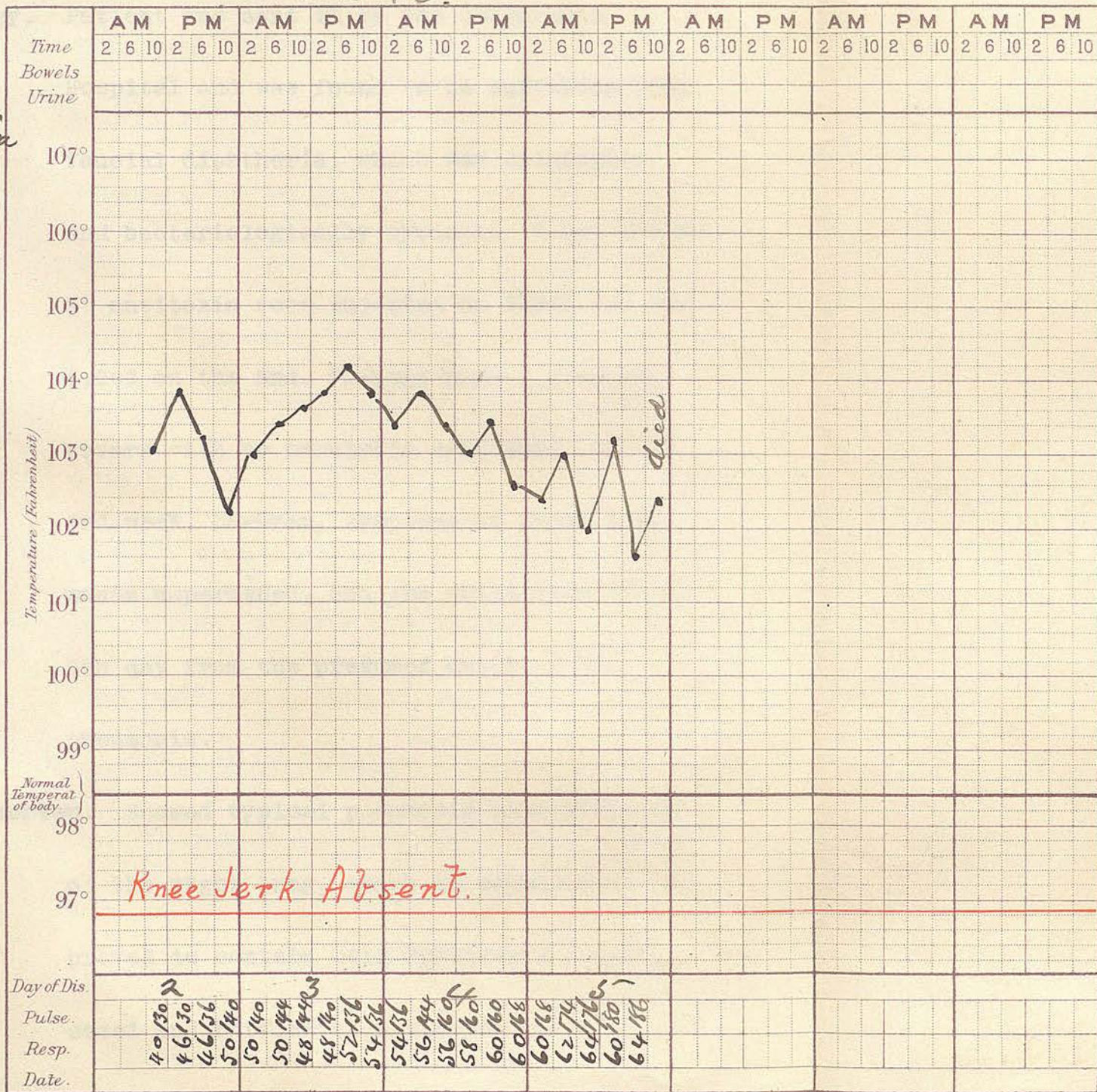
Hour Chart.

DISEASE.

Sofa. Pneumonia
& Diphtheria

James
Aldred
7.

Notes of Case



Date of admission

Result

CASE 43

CASE 44

J.H. Age 7

J.H. Age 8

History. Patient was sent in to the Children's

History. This case was recovery from a typical

Hospital and was found to be suffering from

attack of faucial diphtheria which con-

faucial diphtheria, which was clinically

manifested three weeks before, when symptoms of

and bacteriologically typical. 6,000 units

broncho-pneumonia developed, and tested 7

of antitoxin were injected on first day and

days. The case progressed favourably and

4,000 on the 2nd. Patient made a good re-

covery took place after the child had

recovery with no paralytic symptoms. On the

been in hospital two months.

3rd week, however, symptoms of lobar pneu-

monia supervened, and the child died on the

monia, and were found to be absent.

5th day from the presumed onset of the

They remained absent during the attack and

pneumonia.

were only feebly present when the child

Post mortem. Showed typical pneumonic consolidation

and discharged from the hospital.

of the right lung, which on examination was

proved to contain both Fraenkel's pneumo-

cocci and Löffler's diphtheria bacilli.

CASE 44

J.C. Age 8

History. This case was recovering from a typical attack of faucial diphtheria which commenced three weeks before, when symptoms of broncho-pneumonia developed, and lasted 7 days. The case progressed favourably and recovery took place after the child had been in hospital two months.

Knee jerks. were tested soon after the onset of the pneumonia, and were found to be absent. They remained absent during the attack, and were only feebly present when the child was discharged from the hospital.

CASE. 45

R.W. Age 26

Occupation Moulder.

History. Patient treated at home for lobar pneumonia of right lung. Was received into hospital three weeks after onset of disease, with right side of chest very dull and temperature still fluctuating. Exploratory needle showed pus to be present, and paracentesis was performed. A large quantity of pus was ^{with} drawn, and patient recovered after being in hospital over two months.

Knee jerks appeared to be normal throughout the course of the disease in hospital.

CASE 46

W.R. Age 32

Occupation Stoker

History. Commenced with an attack of lobar pneumonia involving the whole right lung for which he was treated at home. A crisis, however, did not occur, and a fortnight later he was transferred to hospital where an exploration needle showed pus in the right pleural cavity. Examination showed this to contain a practically pure culture of pneumococci. Next day paracentesis was performed and about a pint of pus was ^{with} drawn. Recovery occurred after two months in hospital.

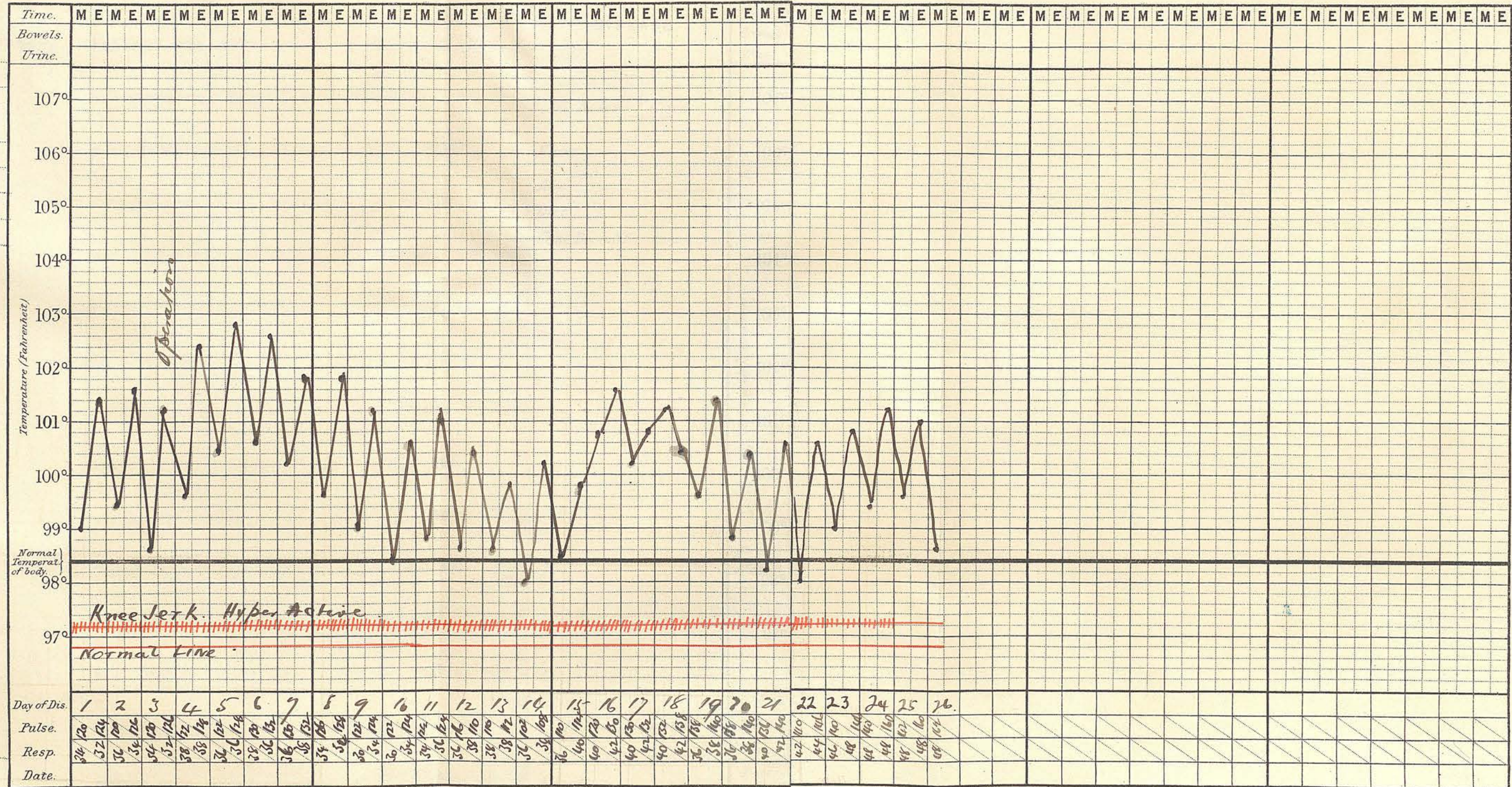
Knee jerks. During the whole time they appeared to be normal, and were certainly never absent.

DISEASE.

Notes of Case.
William
Joyce.
34.

Book IV.

te of admission.



W.J. Age 34

Occupation Labourer.

History. Patient was admitted on account of great shortness of breath and weakness. He had previously been confined to bed with a severe attack of influenza a month before, and had never properly recovered. On examination the right side of the chest was found to give typical physical signs of fluid and on exploration, pus was found. Paracentesis was performed and a large quantity of pus removed. Death however, occurred three weeks afterwards. During the whole course of the disease in hospital, the knee jerks were undiminished, and at times seemed to be slightly exaggerated. Examination of the pus showed the presence of tubercle bacilli and septic organisms.

CASE 48

W.J. Age 34

Occupation Labourer.

History. Patient was admitted with severe cough and shortness of breath. He had been taken suddenly ill two weeks before and was treated for pneumonia. On admission temperature 103, pulse 110, respirations 40. Patient looked very ill. Examination of chest showed physical signs of fluid on right side. Exploration with needle gave pus. Paracentesis was performed and after two months in hospital he was discharged well. The pus gave a practically ^{pure} culture of streptococci.

Knee jerks. were normal throughout the time in hospital.

ANALYSIS OF CASES.

Number of cases included in the discussion 48

Made up of :-

Cases of Pulmonary Consolidation 44

Cases of Empyemata 4

Results of Bacteriological examination show the

causal agent or agents to be as follows :-

1

Of the 44 cases of Pulmonary Consolidation

See cases numbered (1 to 34) Pneumococcus (Fraenkel's) ----- 34

(35 to 42) Tubercle Bacillus ----- 6

Mixed Septic organisms and

(43 to 44) Bacteria of decomposition ----- 2

(43) Diphtheria Bacillus together
with Fraenkel's Pneumococcus ----- 1

(44) Diphtheria Bacillus alone ----- 1

44

II

Of the 4 cases of Empyemata.

See cases.

45+46	Pneumococcus (Fraenkel's)	2
47.	Tubercle Bacillus together with Septic organisms but no pneumococci	1
48	Streptococcus alone	<u>1</u>
		<u><u>4</u></u>

It may be noted as a point of interest that Friedlander's pneumobacillus, although carefully searched for, was not once found in the whole 48 cases; although the percentage of cases in which the pneumobacillus is found either alone or with the pneumococcus is said by Muir and Ritchie to be 5%.

So far as this limited investigation goes this tends to confirm the view that Friedlander's pneumobacillus is seldom found as a causal agent in pneumonia, at any rate in the human subject. On the other hand in the above cases Fraenkel's pneumobacillus was the only organism found in 77% of the cases, which is

higher than the percentage given by Netter (65.95%)

In $12\frac{1}{2}\%$ of the above cases the causal agent was the Tubercle Bacillus.

GROUP I

34 CASES OF PNEUMOCOCCAL PYEMIA

Cases in which loss of knee jerk

occurred at some stage of the disease

= 23.2 %

Cases in which loss of knee jerk was

not complete at any stage of the disease

Of these cases it was only possible to elicit

the knee jerk with some difficulty in 3 cases just

before the crisis, and in the fourth case the knee

jerk was undoubtedly diminished. It is interesting

and important to note that none of these four

cases in which the knee jerk was retained, was

ultimately followed by a fatal result.

Out of the 30 cases in which the knee

11 cases

ANALYSIS OF CASES WITH RESPECT TO THE CONDITION
OF THE KNEE JERK.

GROUP I

34 CASES OF PNEUMOCOCCAL PNEUMONIA.

Cases in which loss of knee jerk

occurred at some stage of the disease

30

See cases
numbered
1 to 30.

= 88.2 %

Cases in which loss of knee jerk was

not complete at any stage of the disease

4

See cases
numbered
31 to 34.

Of these cases it was only possible to elicit the knee jerk with some difficulty in 3 cases just before the crisis, and in the fourth case the knee jerk was undoubtedly diminished. It is interesting and important to notice also that none of these four cases in which the knee jerk was retained, were clinically severe and none of them died, whereas, out of the 30 cases in which the knee jerk was lost 11 died.

GROUP II

2 CASES DUE TO DIPHTHERITIC INFECTION.

In both these cases the knee jerks were absent during the whole course of the disease in hospital. Both were seen after typical attacks faucial diphtheria, which were clinically and bacteriologically typical. As will be seen from the notes the first died of lobar pneumonia and post mortem examination showed the diphtheria bacillus in the lung.

In the second case recovery occurred after an attack of broncho-pneumonia.

GROUP III

6 CASES DUE TO TUBERCULOSIS OF THE LUNG.

(See cases numbered 35 to 40)

State of knee jerks	} -----	preternaturally
in all the cases		active.

Cases in which loss of knee	}	
jerk occurred at some stage		0

In 5 of the 6 cases under this head, there

was no doubt clinically of the diagnosis, tubercle bacilli being found in the sputum in each case. In the sixth case, however, there was considerable doubt as to the precise condition and causal agent. No tubercle bacilli could be found clinically. The course of the disease suggested unresolved pneumonia, and it was only the post mortem examination which finally cleared up the case. This would indicate that the condition of the knee jerk may be of considerable value as a diagnostic sign in doubtful cases.

GROUP IV.

2 CASES OF PULMONARY CONSOLIDATION DUE TO

SEPTIC ORGANISMS. (See cases 41 & 42)

In each case the knee jerk was present up to a few hours before death.

GROUP V.

4 CASES OF EMPYEMA. (See cases 45-48)

(a) Two pneumococcal cases retained the knee jerks

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throughout, thus differing markedly from the cases of pneumococcal consolidation. (Cases 45 + 46)

(b) One case due to tubercle bacilli and septic organisms, retained the knee jerks undiminished until two days before death, (when they were last tested.) (Case 47)

(c) One case due to streptococci. (Case 48)

Knee jerks remained normal throughout, the patient recovering after being in hospital nearly two months.

GENERAL It will thus be seen that the outstanding features of the above are as follows :-

1. The knee jerks WERE ABOLISHED or diminished at some stage of the disease in all cases of pneumococcal consolidation.

2. The knee jerks WERE MORE ACTIVE THAN NORMAL in those cases of Pulmonary disease due to tubercle bacilli.

3. The knee jerks WERE RETAINED in the cases due to streptococci and other "septic organisms".

The only exception to the above occurred in the two cases of, Empyema which although due to pneumococci retained the knee jerk throughout.

Seeing that the disappearance of the knee jerk in pneumonia was thus proved to be almost constantly associated with the pneumococcus (in the absence of diphtheria) it is natural to assume that it is the toxine secreted by this organism which has the special action upon the nervous system, and it became of interest to determine whether the jerks were lost in other pneumococcal conditions, such as meningitis and peritonitis. Unfortunately the only observations made in cases of pneumococcal conditions were in two cases in which pulmonary consolidation was also present. In both of these cases death occurred early, and in both the knee jerks were absent on admission to hospital. With regard to pneumococcal peritonitis I have made no observations, but Mr Nuthall, Surgeon at the Sick Children's Hospital, Birmingham, informs me that he has seen such cases in which the knee jerks

have been absent. As to why the jerks were not absent

in the cases of pneumococcal Empyema referred to

above, I do not feel certain; it may be that neither

case was sufficiently fulminating, but I think a more

likely explanation may be that the absorbtion of the

toxines from the pus containing pleura is not so

rapid as in the case of the lung tissue invaded by

the same organism. And, further, it should be said

that both cases were examined after the empyema had

been opened, though the temperature was still above

normal.

TIME OF DISAPPEARANCE OF THE KNEE JERKS.

The following table gives the approximate time of disappearance of the knee jerks in the cases of pneumococcal pneumonia so far as could be ascertained from the history.

FATAL CASES.

The knee jerk was absent -

	Cases
At the end of the 2nd day in	4
" " " " " 3rd " "	3
" " " " " 4th " "	1
" " " " " 5th " "	2
" " " " " 6th " "	1
	<u>11</u>

RECOVERY CASES.

The knee jerk was found to be absent CASES.

Before the 5th day in	0
On the 5th day of disease in	3
" " 6th " " " "	7
" " 7th " " " "	2
" " 8th " " " "	5
" " 9th " " " "	2
Did not absolutely disappear in	<u>4</u>
	<u>23.</u>

4 HOUR CHART.

Opposite page 69.

DISEASE.
Lobar Pneumonia

Name {
Age
Sex
Case Book No.

Notes of Case



Date of admission

Result

It will thus be seen by a reference to the table and charts that the knee jerk was present in the large majority of cases when admitted to hospital i.e. in the early stages of the disease and that it was only in the later stages that the knee jerk was so constantly affected.

So far as can be seen from a careful investigation of the records the date when the knee jerks disappeared had no bearing upon the date of the crisis except that the knee jerks seldom disappeared before the crisis. The re-appearance of the jerks usually occurred two or three days after the crisis, but in the cases where defervescence occurred by lysis, they were sometimes re-established before the temperature had become subnormal.

The less complete observations all tended to confirm this view, and I have in the annexed chart endeavoured to represent diagrammatically what usually happens in a case of lobar pneumonia of ordinary severity.

With regard to prognosis it would appear from these records that the sign has some value, because in most of the fatal cases the knee jerks disappeared early. In four cases of pneumococcal pneumonia in which the result was fatal, the knee jerks were absent on admission to hospital. As each of these cases were admitted within 48 hours of the commencement of the disease, it is evident that the knee jerks were absent at a very early period.

In other fatal cases the knee jerks were only elicited with difficulty on admission, and were absent next day, i.e. on the third day from the presumed onset of the disease. In one or two of the fatal cases the knee jerk was retained until the fifth day.

In the cases which recovered the general rule was that the knee jerk disappeared later than in the fatal cases. In fact, it would appear from a careful study of the whole group of cases, that, in general, a fatal termination may be looked for if early disappearance of the knee jerk occurs, that is, before

the third day. It presumably indicates that the patient is more profoundly intoxicated - either that he is more susceptible to the poison of the pneumococcus than other patients, or that the poison is of unusual virulence. On the other hand, if the knee jerks are present on the sixth day, it would appear that the patient is practically safe to recover.

It may be said that loss of the knee jerk in pneumonia always occurs before death if the bacterial cause is the pneumococcus. As before stated, the day when the crisis appears cannot be predicted as a result of observing the day of disappearance of the knee jerk.

From the view of view of clinical practice, the condition of the knee jerk may be of use in suggesting a diagnosis in doubtful cases. In one case brought under my notice, all the signs pointed to a pneumococcal consolidation of the right lower lobe, but, although the patient was severely ill, the knee jerks

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remained active during even the third week. During this week the temperature came down by lysis, and soon after he left the hospital at his own request. The sputum had been repeatedly examined, and many bacteria found particularly the streptococcus and the bacillus pyocyaneus, but neither the pneumococcus nor the tubercle bacillus was to be seen. In spite of the clinical signs I suggested early in the disease that the case was not one of pneumococcal pneumonia, solely because the knee jerks has remained active so long. A few weeks later the patient was again admitted to hospital and died within a week of admission. A post mortem examination was allowed and it was then found that the attack had been one of acute pneumonic phthisis, and although now many tubercle bacilli were found, there was no evidence that the pneumococcus had ever flourished there.

As to what indications the loss of the knee jerks may give in regard to treatment, I have not come to

t

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any very definite conclusions, but I think it may be
said that when this sign appears it is time to commence
stimulating the patient. So far as my observations
have gone, heart dilatation has always appeared after
the loss of the knee jerk, and usually within a com-
paratively short time. But, as I have only examined
a small number of patients with this object, I am
unable to state the view as a fact which holds good
in general.